THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON. *Telephone*—TEMPLE BAR 7228 & 7229. *Offices*—423, Strand, London, W.C.2

No. XIV. OF Vol. II., 1929. LONDON, SATURDAY, OCTOBER 5, 1929 Pp. 136—Price 1s.
No. 5536. Vol CCXVII. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription Inland £2 2s. Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 7.

With 26 Illustrations, including 17 Plates. Demy 8vo. 9s. net; postage 5d.

STERILITY IN WOMEN:
DIAGNOSIS AND TREATMENT.
By SIDNEY FORSDIKE, M.D., B.S. (Lond.), F.R.C.S., Surgeon to the Hospital for Women, Soho Square, London, &c.
"Shows . . . evidence of rich personal experience; will well repay the most careful study."—THE LANCET.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

DISEASES OF THE RECTUM AND COLON
AND THEIR SURGICAL TREATMENT.
BY
J. P. LOCKHART-MUMMERY,
F.R.C.S.ENG., M.A., M.B., B.C.CANTAB.,
Senior Surgeon to St. Mark's Hospital.
Over Two Hundred Plates and Illustrations. Price 25s.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

DEAFNESS AND ITS ALLEVIATION.
INCLUDING THE AUTHOR'S OPERATION.
By VINCENT NESFIELD, F.R.C.S.Eng., Major I.M.S. (retired).
H. K. Lewis & Co. Ltd., 28 Gower Place, W.C.1.

THE THOMAS SPLINT AND ITS MODIFICATIONS IN THE TREATMENT OF FRACTURES.
By MEURICE SINCLAIR, C.M.G., M.B., CH.B.(EDIN.).
Pp. 152. 85 Illus., with X-Ray Photographs, 3 Charts. 15s. net.
Oxford University Press, Amen House, London, E.C.4.

NOW READY. 4/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS
BY THE ELECTROPHONOÏDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.,
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

THE TONSILS AND ADENOIDS
AND THEIR DISEASES: INCLUDING THE PART THEY PLAY IN SYSTEMIC DISEASES.
By IRWIN MOORE, M.B., C.M.
Demy 8vo. 395 pp. 107 Illustrations. Price 21s. net.
"On any question regarding tonsils and adenoids, this exhaustive work by Dr. Irwin Moore must be regarded as the final authority for many a long day to come."—PRACTITIONER.
"Provides an admirable guide, reliable and up to date, on the subject dealt with."—MEDICAL TIMES.
"Should be in the library of the medical student, general practitioner and the consultant."—MEDICAL WORLD.
Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

J. & A. CHURCHILL'S EMPIRE SERIES.
CAMERON'S TEXT-BOOK OF BIOCHEMISTRY, 2nd Ed., 14 Illus. 15s.
DUKE-ELDER'S PRACTICE OF REFRACTION, 208 Illus., 12s. 6d.
FOWWEATHER'S CLINICAL CHEMICAL PATHOLOGY, 18 Illus., 8s. 6d.
Sir FRANK CONNOR'S SURGERY IN THE TROPICS, 99 Illus. 12s. 6d.
JELLETT'S CAUSES AND PREVENTION OF MATERNAL MORTALITY, 15s.
MASSIE'S SURGICAL ANATOMY, 121 Illus., 15s.
PINEY'S DISEASES OF THE BLOOD, 20 Illus., 12s. 6d.
WHITBY'S MEDICAL BACTERIOLOGY, 75 Illus., 10s. 6d.
London: J. & A. Churchill, 40, Gloucester-place, Portman-sq., W.1.

SAUNDERS' TEXT-BOOKS
FOR STUDENTS.
See Saunders' Advertisement on page 5.

METHODS AND USES OF
HYPNOSIS AND SELF HYPNOSIS.
By BERNARD HOLLANDER, M.D. 6s.
Dr. Hollander's new book is the result of thirty years' experience of experimental hypnosis and hypnotic treatment, and contains directions how to apply hypnotism for the treatment of functional nervous and mental disorders and moral failings, as well as a survey of all that is scientifically known of this form of psychotherapy.
By the same author:
THE PSYCHOLOGY OF MISCONDUCT, VICE, AND CRIME. Third Impression. 7s. 6d. net.
Geo. Allen & Unwin, Museum Street, London, W.C.1.

THE ESSENTIALS OF HISTOLOGY
DESCRIPTIVE AND PRACTICAL. FOR THE USE OF STUDENTS.
By Sir EDWARD SHARPEY SCHAFER, F.R.S.
TWELFTH EDITION. Revised by the Author with the coöperation of H. M. CARLETON, Ph.D.
With 758 Illustrations, many of which are in Colour. 8vo. 15s. net.
Longmans, Green & Co., Ltd., 39, Paternoster Row, London, E.C.4

PRACTICAL PSYCHOTHERAPY.
THERAPY OF PERSONAL INFLUENCE.
By EDWIN HOPEWELL-ASH, M.D. An A.B.C. of Treatment by Personal Influence, Suggestion and Medical Hypnosis.
Obtainable from BM/ELHA, London, W.C.1. 2/9 post free.

THE TONGUE AND ITS DISEASES.
By DUNCAN C. L. FITZWILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S.
Pp. xvi., 505.
Illustrated. Price 36s. net.
"It is destined to become a standard work of reference."—BRIT. MEDICO-CHIRURGICAL JNL.
Oxford University Press, Amen House, London, E.C.4.

H. K. LEWIS & CO. LTD., MEDICAL PUBLISHERS AND BOOKSELLERS

Text-Books and Works in Medical, Surgical, and General Science of all Publishers.

Prompt attention to orders and enquiries for Foreign Medical and Scientific Books. Catalogues post free on Application.

Medical Stationery, Loose Leaf Case Books, Card Index Systems, Case Sheets, Filing Cabinets, etc.

Department for SECOND-HAND BOOKS, 140, Gower Street. Telephone: MUSEUM 4031.

MEDICAL AND SCIENTIFIC CIRCULATING LIBRARY
Annual Subscription, Town or Country, from One Guinea.

LIBRARY READING ROOM (first floor) OPEN DAILY TO SUBSCRIBERS. Hours: 9 a.m. to 6 p.m. Saturdays to 1 p.m.

136, GOWER STREET, and 24, GOWER PLACE, LONDON, W.C. 1.
Telegrams: "PUBLICAVIT, EUSROAD, LONDON." Telephone: MUSEUM 7756 (3 lines.)

Felsol

INTERNAL NON-NARCOTIC TREATMENT

FOR

ASTHMA

"**Felsol**" contains no narcotics, yet it possesses the power to promptly check or relieve the asthmatic attack peculiar to the former.

"**Felsol**" is reliable in its action even in chronic cases of long standing.

"**Felsol**" is adapted for the prophylaxis of the attack, and if taken in time, or as soon as symptoms of the approaching attack are perceived will, as a rule, prevent it.

"**Felsol**" is packed in a convenient form for the patient's use at home, when at work or travelling. It is easily administered by placing the powder on the tongue and swallowing with a drink of water. These two points are of special importance to the general practitioner and busy physician.

Clinical Sample and Literature post free upon request.

BRITISH FELSOL CO., LTD., 15 CAROLINE STREET, W.C.1.

Telephone: Museum 2855. Telegrams: "Felsol, Westcent, London."

FELAMINE BRAND SANDOZ

SANDOZ

An association of the most powerful cholagogue—pure crystallised cholic acid—and the classical biliary disinfectant — hexamine, entirely free from accessory substances.

Indications:

CHOLANGITIS, CHOLECYSTITIS, HEPATIC INSUFFICIENCY, HEPATIC CONGESTION, JAUNDICE, CHRONIC CONSTIPATION.

Felamine is supplied in Bottles of 50 and 250 Tablets.

AGENCY:-

SANDOZ CHEMICAL WORKS PHARMACEUTICAL DEPT.

5, WIGMORE STREET, LONDON. W. 1.

THE LANCET

No. 5536. LONDON, SATURDAY, OCTOBER 5, 1929. CCXVII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

OPENING OF THE MEDICAL SCHOOLS.

Birmingham University.—Arrogance and Ignorance in Medicine: Sir E. FARQUHAR BUZZARD 695
Guy's Hospital.—Medical Societies, their Origin and Value: Sir HUMPHRY ROLLESTON 731
St. George's Hospital.—Doctor and Patient: Founded on 33 Years of Mistakes: EDMUND I. SPRIGGS, F.R.C.P. 732
Middlesex Hospital.—Life's Endless Chain: E. A. COCKAYNE, F.R.C.P. 734
Royal Free Hospital.—The Return of Women to Medicine: JANE WALKER, M.D., J.P. 736
Westminster Hospital.—The Local Government Act, 1929: F. N. KAY MENZIES, F.R.C.P. 737

ORIGINAL ARTICLES.

Alleged Experimental Production of Malignant Tumours in the Fowl. By A. M. BEGG, M.B., and W. CRAMER, M.R.C.S. 697
Ultimate Prognosis in Cases of Eclampsia and Albuminuria of Pregnancy. By JESSIE C. B. SYM, M.D. 698
Clinical Picture Produced by Subacute Meningococcal Septicæmia. By C. LAWSON STOTE, M.B. 701
Therapeutic Value of Irradiated Milk in the Treatment of Rickets. By CHALMERS WATSON, F.R.C.P., and T. Y. FINLAY, F.R.C.P. With a Radiological Report by J. B. KING, M.R.C.P. (*Illustrated*) 704

CLINICAL AND LABORATORY NOTES.

Adenocarcinoma of Bronchus. By L. S. T. BURRELL, F.R.C.P.—(*Illustrated*) 708
Cicatricial Stenosis of the Œsophagus. By K. HERITAGE, F.R.C.S. 708
Chronic Parasitic Funiculitis in Egypt. By Dr. M. F. SOROUR—(*Illustrated*) 708

BRITISH MEDICAL ASSOCIATION.

Annual Meeting in Manchester: Section of Pathology and Bacteriology: Tumours of the Intestine 710
Section of Orthopædics: Operative Treatment in Tuberculosis of the Larger Joints 711

REVIEWS AND NOTICES OF BOOKS.

Osteomyelitis and Compound Fractures and other Infected Wounds. By H. Winnett Orr, F.A.C.S. 716
Sleep. The Treatment of Its Disorders. By R. D. Gillespie, M.R.C.P. 716
Otosclerosis 717
Medicine: Its Contribution to Civilisation. By E. B. Vedder 717
An Introduction to the History of Medicine. By Lt.-Col. Fielding H. Garrison, M.D. 717
Laboratory Manual for Comparative Anatomy. By M. E. Little and R. T. Kempton 718
En Oversikt over den Kliniske Undersökelse av det Viscerale Nervesystem og en Kritikk av de Forskjellige prövers Praktiske verdi Stöttet paa egne Undersökelser. By Dr. G. Langfeldt. ... 718
Bacteriology and Sanitary Science. By Prof. Louis Gershenfeld, B.Sc. 718
Handbook of Bacteriology. By Prof. Joseph W. Bigger, M.D. 718
Food, Health, Vitamins. By Prof. R. H. A. Plimmer, D.Sc., and Violet G. Plimmer 718

PUBLIC HEALTH SERVICES.

Reports of Medical Officers of Health: Sheffield.—Leicester.—Nottingham.—Blackburn 713
Mental Hospital Reports.. 715
Infectious Disease in England and Wales 716

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service 738

LEADING ARTICLES.

MENTAL HEALTH IN 1928.. 719
CURES AND PREVENTION.. 720
WORLD HEALTH ORGANISATION 720
BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS 721

ANNOTATIONS.

Medical Defence 722
Fluke Infections of Man's Biliary Passages 722
Perception of Movement.. 723
The Dosage of Intravenous Glucose 723
Changes in Local Government 723
Anaerobic Toxæmia in Acute Obstruction 724
The Ripening of Beef 724
The Radium Commission.. 725
The Sequels of Toxæmic Pregnancy 725
A Chapter in Public Health 725
Blood-Platelets in Werlhof's Disease 726
The Balance between Malaria and the Venereal Diseases 726

CLINICAL INTERPRETATION OF AIDS TO DIAGNOSIS.

The Microscopic Examination of Fæces. I.—Cytology and Animal Parasites. By S. W. PATTERSON, M.R.C.P. .. 727

SPECIAL ARTICLES.

International Physiological Congress at Boston 729
Scotland: Reorganisation of Health Services 739
United States of America: Abdominal Tenderness and Unnecessary Operations 740
Vienna: Prof. Noorden's New Clinic 740

OBITUARY.

Ernest Edward Glynn, F.R.C.P.—(*With portrait*) 741

CORRESPONDENCE.

Relation of the Tonsils to Rheumatic Conditions (Mr. William Wilson, Dr. A. Graham-Stewart) 742
Vital Staining of Neoplastic Tissues (Dr. Bernard Leggett) 743
The Importance of the Liver in Chemotherapy (Dr. A. T. Todd) 743
Congenital Ectodermal Defect (Dr. F. Parkes Weber) 743
Vaccination and Encephalitis (Mr. A. F. W. da Costa) 743
The British College of Obstetricians and Gynæcologists (Mr. Victor Bonney) 743
Medical Sickness, Accident and Life Assurance Society, Limited (Dr. Harvey Hilliard) 744
A Case of Severe Snake-bite in the West of England 744
Aspirin as a Hirudicide (Dr. Butrus Salah) 750

MEDICAL NEWS.

University of Leeds 744
University of London. University College 744
Yorkshire Voluntary Hospitals Fund 696
St. Mary's Hospital 703
Birmingham General Hospital: Studentship in Diabetic Research 707
Lodge Moor Hospital, Sheffield 742
Charing Cross Hospital 742
Hospital for Tropical Diseases 744
Clinical Lectures at Maudsley Hospital 744
Royal Dental Hospital of London: School of Dental Surgery 745
Royal Albert Institution Extension 745
London Medical Exhibition 745
Donations and Bequests.. 745
Royal Medical Benevolent Fund 745
Liverpool School of Tropical Medicine 745
St. Bartholomew's Hospital Dinner 745
Westminster Hospital Dinner 746
Middlesex Hospital Dinner 746
Prince of Wales's General Hospital 748
Birmingham Cripples Hospital 748

NOTES, COMMENTS, AND ABSTRACTS.

Observations in Iceland: History and Health—(*To be concluded*) 748
Destruction of Home Pests 750

Medical Diary 746
Appointments.—Vacancies 747
Births, Marriages, Deaths 748

BOOKS FOR SURGEONS

SIR F. CONNOR'S SURGERY IN THE TROPICS
99 Illustrations. 12s 6d.

CADE'S RADIUM TREATMENT OF CANCER.
62 Illustrations. 15s.

BERTWISTLE'S SURGICAL RADIOLOGY.
21 Plates. 8s. 6d.

MASSIE'S SURGICAL ANATOMY. 121 Illustrations. 15s.

ROWLANDS AND TURNER'S OPERATIONS.
7th Ed. 2 Vols. 70s.

ROMANIS AND MITCHINER'S SCIENCE AND PRACTICE OF SURGERY. 2nd Ed. after 18 months. 2 Vols. 28s.

WILLIAMS' MINOR SURGERY AND BANDAGING. 19th Ed. 10s. 6d.

WOOLLARD'S RECENT ADVANCES IN ANATOMY. 12s 6d.

DARLING'S SURGICAL NURSING. 3rd Ed. 8s. 6d.

OGILVIE'S RECENT ADVANCES IN SURGERY.
2nd Ed. 115 Illustrations. 15s.

LONDON: J. & A. CHURCHILL, 40, Gloucester Place, Portman Square, W.1

A TEXT-BOOK OF PULMONARY TUBERCULOSIS

By **R. C. WINGFIELD**, B.A., M.B.(Oxon.), F.R.C.P.,
Late Physician in charge of the Tuberculosis Department St. Thomas's Hospital;
Medical Superintendent, Brompton Hospital Sanatorium, Frimley.

Demy 8vo. xvi+401 *pages.* 92 *illustrations.* 52 *plates.* **31/6** *net.*

THE LANCET, July 13th issue.—"A text-book on tuberculosis was wanted. This one can be thoroughly recommended to all interested in tuberculosis, not only as a text-book but also as a work of reference."

THE BRITISH MEDICAL JOURNAL, June 1st issue.—. . . . "the practitioner will be well advised to turn to such a book as that of Dr. Wingfield's, from which he will obtain a sane estimate of what can, and what cannot, be done for a tuberculous patient."

OTHER STANDARD WORKS INCLUDE

THE INTEGRATIVE ACTION OF THE NERVOUS SYSTEM
Sir CHARLES S. SHERRINGTON, D.Sc., M.D., F.R.S. Demy 8vo. **26/-** net.

PATHOLOGY OF THE NERVOUS SYSTEM
E. FARQUHAR BUZZARD, M.A., M.D., F.R.C.P. and **J. GODWIN GREENFIELD**, M.D., F.R.C.P.
Demy 8vo. **30/-** net.

RECENT METHODS in the DIAGNOSIS and TREATMENT of SYPHILIS
C. H. BROWNING, M.D. and **IVY MACKENZIE**, M.D. Med. 8vo. **42/-** net.

AND A SERIES OF

MODERN MEDICAL MONOGRAPHS
Written specially for the General Practitioner.
Edited by **HUGH MACLEAN**, M.D., D.Sc., F.R.C.P.
(Prospectus post free on application.)

CONSTABLE & CO. LTD. 10 & 12 ORANGE STREET LONDON W.C.2.

From EDWARD ARNOLD & CO.'s List

NEW 3rd EDITION.

PRACTICAL PHYSIOLOGY

By Professor **E. P. CATHCART**, F.R.S., University of Glasgow, the late Professor **D. N. PATON**, F.R.S., and Professor **M. S. PEMBREY**, F.R.S., University of London. xvi + 408 pages. 206 Illustrations. **18s** net.

MIDWIFERY
By 10 London Teachers

Edited by **COMYNS BERKELEY**, M.A., M.D., M.C., F.R.C.P.; **H. R. ANDREWS**, M.D., B.S., F.R.C.P., and **J. S. FAIRBAIRN**, M.A., B.M., B.C., F.R.C.P. *Third Edition.* xii + 640 pages. 8 Coloured Plates. 215 Illustrations. **24s.** net.

New 2nd Edition.
Revised & Enlarged

TEXT-BOOK OF PATHOLOGY
BY
ROBERT MUIR,

M.A., M.D., Sc.D., F.R.S., Professor of Pathology, University of Glasgow; Pathologist to the Western Infirmary, Glasgow. viii + 872 pages, 500 Illustrations. **35s.** net.

The Lancet:—"The more often it is consulted the more its excellence becomes apparent. In no other book of its size with which we are aquainted is the lucid presentation of general principles combined with such a wealth of detailed information . . . . Not only an admirable text-book, but a work of reference that should be in every pathologist's library."

GARROD & BATTEN'S

DISEASES OF CHILDREN

New Second Edition, with Contributions by 36 Authors. Edited by **HUGH THURSFIELD**, D.M., M.A., F.R.C.P., and **DONALD PATERSON**, M.D., F.R.C.P., Physicians to the Hospital for Sick Children, Great Ormond Street. xii + 1106 pages, 205 Illustrations. **45s.** net.

A SYSTEM OF CLINICAL MEDICINE

By the late **THOMAS DIXON SAVILL**, M.D.Lond., Physician to the West End Hospital for Nervous Diseases, etc. *Seventh Edition.* xxviii + 1004 pages, 4 coloured plates, and 176 Illustrations. **28s.** net.

LONDON: EDWARD ARNOLD & CO., 41-43, MADDOX STREET, W.1

An Address

ENTITLED

ARROGANCE AND IGNORANCE IN MEDICINE.

Delivered at the Birmingham University Medical School on Oct. 1st, 1929,

BY SIR E. FARQUHAR BUZZARD, BART., K.C.V.O., M.D. OXON.,

CONSULTING PHYSICIAN TO ST. THOMAS'S HOSPITAL; REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

WE cannot blind ourselves to the fact that the present position and reputation of the medical profession in the eyes of the public is unsatisfactory. We cannot remain deaf to the censure, sometimes good-natured, sometimes ill-natured, well-founded or baseless, so frequently passed in ordinary conversation on doctors and doctoring. It is not easy to treat as they deserve the cheap sneers which emanate so glibly from the judicial bench, nor to overlook the odious comparisons drawn between qualified and unqualified practice in the columns of our sensational and not too scrupulous newspapers. We are blamed, almost in one breath, for our conservatism, our radicalism, and our trades-unionism. There can be little doubt that, speaking generally, we live in an atmosphere which may be described as unsympathetic and suspicious, if not actually antagonistic. It may be that such an atmosphere is beneficial to our health, although I doubt it; at any rate we can do no harm and may do good if we investigate its properties and perhaps suggest such measures of ventilation as may appear to be desirable.

The charges laid against us are many, but they may be divided roughly into two groups, those of Arrogance and those of Ignorance. Let us examine the evidence which can be brought to support them, and if we are found guilty, as I have no doubt we shall be, let us hear what can be stated in mitigation. It might save the time of the Court if we plead guilty at once to both charges, and confine ourselves to pleas of justification or provocation.

ARROGANCE.

The indictment of Arrogance is laid in the following terms: "You are inclined to treat your patients as fools, to be too cocksure, and to lay down the law as if you were infallible; you won't listen to what we have got to say, and you are intolerant of the views of others."

The terms of such an indictment are general rather than specific, but certainly contain more than a grain of truth. The answer to them must also be general, and relies for its sufficiency on rather wide considerations which I must endeavour to formulate as briefly as possible.

It must be remembered, in the first place, that at the time of qualification a medical practitioner has spent at least seven years pursuing an educational curriculum which bears no resemblance to that through which the large majority of his patients have passed. In addition to mastering the principles of physics, chemistry, and biology, he has spent at least two years in the study of human physiology and anatomy, and at least three more years in acquiring some knowledge of pathology, medicine, surgery, midwifery, and a number of other special subjects. The load of information he has ingested is enormous, probably much greater than he has had time to digest, but that does not constitute the essential difference in his education from that of his future patients. During the whole of these seven years he has been trained in precise methods of investigation, has learnt to think scientifically, and to speak in scientific terms, to distinguish between facts and theories, to regard a priori conceptions with suspicion, to appreciate the value of experiments and controls, and generally has developed a critical faculty of which the lay mind is, perhaps mercifully, completely innocent.

Removed from his hospital, separated from his fellow students and teachers, and flung into practice, he finds himself in another world, where he is called upon to discuss medical matters with patients who, nominally educated, are not only ignorant of the rudiments of science, but who are often incapable of clear thinking or clear expression. He finds that their answers are unrelated to his questions, their beliefs are confused with facts, that the identity of post hoc with propter hoc is accepted without reserve, and that hearsay evidence is treated with the greatest respect. In short, he quickly realises that discussions on questions of health and ill-health are about the most difficult and exacting of the tasks with which he is confronted. If he is wise, and if he values the status of his profession, he will set himself to study this aspect of his work with the devotion he gave to his study of pathology. He will train himself to answer questions with the truth and nothing but the truth, even if he does not always feel justified in imparting the whole truth. He will learn to use language intelligible to his interrogators and he will never hesitate to express his doubts or his ignorance where his patient's welfare is at stake. Lastly, he will be prepared to give unlimited time and attention to practising the arts of listening and questioning, perhaps the most important part of his professional equipment.

Questions and their Answers.

If he is unwise and impatient he will evade inquisition, ask few questions, turn a deaf ear to stories which may be gold mines of information, and eventually justify the accusation of arrogance. It is not difficult to find excuses for this line if he has chosen it. It may be urged on his behalf that he has not the necessary time to give to the task, or that his attempts to accomplish it have always failed, his explanations having been misinterpreted and his opinions wrongly reported. Little wonder, perhaps, that he has taken the path of least resistance, although at the same time he has closed the door on the possibility of establishing that mutual confidence between doctor and patient which is essential to successful practice.

Although Medicine, year by year, is becoming more scientific in methods of investigation, no medical man can afford, and the profession cannot afford, to neglect the art of questioning or the art of listening. Therein lies an economic problem, the solution of which must some day be sought and found, but which would occupy more time than I can spare for its elaboration now. I refer to the fact that in general practice it is often impossible for a doctor to give to each patient the time necessary, not for physical examination, but for verbal cross-examination, and yet see a sufficient number of patients to earn a living wage. Skilful cross-examination will often define, and thus limit the field of, the necessary physical and chemical examination, but it requires time and perseverance, because what the doctor wants to learn, and what the patient thinks the doctor wants to learn, are rarely the same thing. The doctor may readily earn a reputation for arrogance if he cannot conduct his cross-examination with tact as well as with intelligence.

IGNORANCE.

And now for ignorance; our ignorance and that of the public. Ours is comparative, the public's is superlative. Our knowledge of the factors underlying health and disease, although comparatively small, is infinitely greater than it was even 50 years ago, and is steadily increasing. This knowledge is the standard by which we judge ourselves, but, in the public eye, our knowledge is measured entirely, and perhaps naturally, by our ability to cure. We are criticised, for instance, because we can cure neither cancer nor the common cold, and our critics assume that our ignorance of both conditions is something of which we may well be ashamed. Perhaps, but we can put up some kind of defence. In the first place, the criticism is based on an assumption, a relic of mediæval belief,

that there are so many diseases for every one of which a cure exists, if we are clever enough to find it. Such an assumption cannot really be supported for a moment by any reasonable argument, and, in fact, the more we know of disease the more does it appear to lack foundation. The claims for prevention of disease, on the other hand, are becoming daily more firmly established, and the future of medicine surely lies in that direction.

The Public Demand for Cures.

A cure for cancer is loudly demanded by the public, and every effort has been and is being made to meet that demand by attempts to discover the cause or origin of that disease. In this case we are not justified in assuming that it can be cured or prevented, even if all its mysteries are revealed.

The common cold is on a different footing, and we may probably claim to know all the material facts about it. It is not curable, because it is only the manifestation of a battle royal between invading microbes and the tissues of their victim, and all we can do is to render aid to the latter in order to shorten the struggle and hasten his almost inevitable victory. It is probably preventable, but effectual preventive measures would produce such a social upheaval, and raise such an outcry from the public, that no Minister of Health is ever likely to risk his position or his parts by bringing them into force.

Diseases may probably be divided into several groups: (1) the curable, (2) the preventable, and (3) a group comprising those about which we know too little to determine the scope of their preventability. Of these three groups the smallest is the curable, and it is safe to predict that it will always remain so, while we may legitimately hope that the preventable group will gradually increase.

Let me add, in confidence, that there is yet another group of diseases, by no means insignificant in size, which are never cured, but which almost invariably disappear without, and sometimes in spite of, medical treatment. I might go further and point out that there are many diseases afflicting mankind to which the idea of cure is not, nor is ever likely to be, applicable. Take, for instance, "infantile paralysis" or acute poliomyelitis. Seeing its lamentable results, the public naturally assumes that we know nothing about it. If we did, we ought and should be able to cure it. But that is not the case. We know a great deal about it, and the more we know the less likely does it appear that a cure will ever be forthcoming. That it is preventable, that under certain circumstances it may be possible to arrest it, are well-founded beliefs, which we are justified in holding, but a cure for the disease can only be hoped for by those who really *are* ignorant of its pathology.

Response to the Demand.

We need not lie awake and fret about this aspect of our ignorance, provided we do not as a profession claim to cure disease. That is a claim we may well leave to quacks and charlatans, who will always find a public ready to believe them. On the contrary, it should be our object to make our methods of practice and our claims so different from those of quacks that the public should have no difficulty in distinguishing them. Therein we fail, and thereby we must plead guilty to a charge of ignorance. How can we expect to be acquitted of such a charge when we see the profession taking up, and following like a flock of sheep, each new "cure-all" stunt as it is offered to it? Sour milk, hormones, all forms of electricity, and lastly, ultra-violet rays, to mention only a few, have all been exploited by the profession with so little discrimination that a public cannot but fail to distinguish between qualified and unqualified practice. Without diagnosis and without dignity have doctors applied such measures, each in its turn, to every known ailment, with the result that our wisdom and our honesty, as well as the merits of the curative agent itself, have often become discredited. And our only defence is based on the statement that patients insist on having the newest thing in the way of cures! A very poor excuse, and one quite unworthy of the profession whose scientific status we are anxious to raise.

Perhaps my indictment is drawn in somewhat strong terms, but I should not be exaggerating very greatly if I said that I never see a patient nowadays who has not already been lavishly exposed to artificial or natural sunlight—not a very good advertisement for Old King Sol, or his synthetic offspring!

Psychological Training.

Yet another aspect of our ignorance on which stress is often, and not always undeservedly laid. It is, perhaps, again the fault of an overcrowded curriculum that the psychological side of our work does not receive the attention which is its due. Every patient is an individual with his own idiosyncrasies and with his own reactions. We are accused of treating them as if they were all alike, and of ignoring their personal characteristics or peculiarities. The art of recognising such features is not an easy one to acquire, but time and labour spent in that direction is not wasted, even if the results obtained may sometimes upset the lessons we have learnt from clinical signs or from boiling test-tubes. A doctor is apt to be classed as ignorant, perhaps even arrogant, if he has not earned the title of "understanding."

THE TRUE RÔLE OF MEDICAL MEN.

I cannot here exhaust the whole sum of our iniquities, but I hope to have indicated some of the lines along which future generations of doctors may count to correct the mistakes of their misguided predecessors. In order to dissipate any gloom I may have produced, I would like to add a few words of reassurance and encouragement. The criticisms, just and unjust, to which I have referred are levelled at professional practice as a whole, rather than at doctors individually, each of whom has it in his power to earn the respect, gratitude, and affection of his patients. The personal status of the doctor depends, not so much on his knowledge or ignorance, his modesty or arrogance, as on his willingness or unwillingness to place all, or more than all, his resources at the disposal of those who seek his help. If I were permitted to coin a motto, appropriate alike to consulting-room and surgery, it would be "Give and do more than is required of you."

Let me close with a short but true story. A few weeks ago I was staying at an hotel in the south of England, and one evening I received a message to the effect that Lord Mersey, an old and eminent judge, who has since passed away, would like to have a few words with me. He greeted me in the following way: "I wanted to make your acquaintance because I knew and greatly respected your father. Many years ago, towards the end of a long illness, he was asked to see me. After consultation with the other doctors, he came back to my bedside and said, 'I don't know what is the matter with you, but I am confident that you will make a complete recovery.' He was quite right, and I have never forgotten the comfort and hope with which his words inspired me."

To the unthinking my father's words might have sounded like a confession of ignorance. To a great lawyer they appeared to be based on knowledge. There was no claim, no promise, to cure; only confident prophecy, born of experience. If our profession as a whole is to attain its rightful position let it cease to profess to cure, and be content to show the public that its knowledge and experience, limited as they yet must be, are assets of value on which reliance can be safely placed.

YORKSHIRE VOLUNTARY HOSPITALS FUND.—The East and West Ridings Voluntary Hospitals Committee has now been enlarged by the inclusion of the North Riding, which has hitherto had a separate committee. The purpose is to accomplish for Yorkshire what King Edward's Fund does for London, and the new fund will be known by the name of Princess Mary, who is the patron; Lord Lascelles will be the President. During the financial year just ended the old committee raised nearly £8000.

ON THE ALLEGED EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS IN THE FOWL.

By A. M. BEGG, M.B., Ch.B. N.Z.,
AND
W. CRAMER, Ph.D. Berlin, D.Sc. Edin., M.R.C.S. Eng.

(*From the Laboratories of the Imperial Cancer Research Fund.*)

In recent years statements have appeared repeatedly in the cancer literature to the effect that it is possible to transform normal fowl cells rapidly by a simple experimental procedure into malignant cells. The first statement of this kind was made by Carrel, who claimed to have obtained a malignant tumour of the fowl by injecting a normal fowl with normal embryo emulsion and certain chemicals, such as arsenious acid, indol, skatol, and tar. One of these tumours is still being propagated in various laboratories and appears in the literature as "Carrel's indol tumour." Later Carrel's procedure was modified by his pupil A. Fischer and his collaborators, who cultivated normal fowl cells in vitro together with various chemical substances such as arsenious acid, and claimed to have produced a transformation in vitro of normal cells into malignant cells, so that the tissue cultures, when injected into normal fowls, produced a malignant new growth. In one of these experiments, published from Fischer's laboratory by Laser, the transformation was effected by cultivating normal cells of the fowl in the serum of another fowl which had received injections of tar. Even simpler was the procedure of Haagen, who cultured normal monocytes of the fowl in the ordinary way in vitro, and on injecting these cultures, together with dilute arsenious acid into six fowls, obtained, after three weeks in four of these animals, large, rapidly metastasing tumours, which, according to the description, were typical Rous tumours No. 1.

The experiments of Carrel, which are technically the simplest to perform, have been repeated in many different laboratories by experienced workers (Deelman, Roussy, Pentimalli) with uniformly negative results. Although the failure to confirm these results has been published, Carrel has not communicated any further experiments confirming his positive results.

At the International Congress of Cancer in 1928 A. Leitch and J. B. Murphy reported that they had been able to produce a malignant new growth in fowls by the injection of materials derived from normal fowls. Leitch obtained this result with the extract of a normal fowl's pancreas, while Murphy claimed to have succeeded with material obtained from a normal fowl's testicle. In the Annual Report of the British Empire Cancer Campaign for 1929 Leitch reported that, in spite of numerous repetitions of these experiments, he had been unable to confirm either his own result or those of Murphy. Murphy himself has not published a confirmation of his preliminary communication.

One curious feature of these observations is that the malignant tumour produced in all these experiments is always of the same type—namely, a sarcoma closely resembling in its histological appearance and its biological characters, such as filtrability, rate of growth, the Rous tumour No. 1. This is the filtrable tumour of the fowl which is being propagated in all the laboratories from which claims as to the alleged transformation of normal cells of the fowl into malignant cells have been published. But the spontaneous appearance of this type of tumour is by no means a particularly frequent event. Rous himself described over 40 tumours of the fowl; of these only six were filtrable, and of these six tumours only one (No. 43) had the same histological appearance and biological character (rate of growth, &c.) as Rous tumour No. 1, while two other filtrable tumours (Nos. 18 and 38) resembled each other, but differed in their histological appearance quite definitely from the tumour No. 1. Fujinami has described 32 carcinomata and seven sarcomata occurring in fowls, and of these only one resembled in its histological appearance and its biological characters the Rous tumour No. 1. Pentimalli has described 18 spontaneous tumours of the fowl, of which one was a carcinoma. None of the 17 sarcomata resembled the Rous tumour No. 1. In our laboratory, in which a large number of fowls of all ages have been under observation during the last five years, five spontaneous tumours have been found. Of these, two developed the property of filtrability, but both differed widely from each other and from the Rous tumour No. 1 in their histological appearance and their rate of growth. In this connexion we may also refer to a hitherto unpublished result obtained by our late colleague, Dr. B. R. G. Russell. By repeated subcutaneous injections of tar into fowls he succeeded in producing a hard tumour in one fowl after more than a year. Histologically it was a fibrosarcoma; transplantation with living cells gave negative results, and it showed no resemblance to the Rous tumour No. 1.

It is clear, therefore, that so far as the spontaneous development of malignancy in fowls is concerned, the same degree of variability exists as in mammals, and that the Rous tumour No. 1 does not represent a particularly frequent type of malignancy in fowls. The fact that the *alleged* experimental transformation of normal cells of the fowl into malignant ones always leads to the same type of tumour is, therefore, a feature which requires explanation, especially when one takes into consideration that the experimental conditions under which this same type of tumour was *apparently* produced from normal cells differed widely both as regards the normal cells and the material which was allowed to act upon them.

A Source of Fallacy.

During the last three years repeated attempts have been made in this laboratory to test the validity of the contention put forward by Carrel and his pupils. Quite recently experiments have been carried out to test also the results obtained by Leitch with material obtained from the pancreas of normal fowls. All of them have yielded negative results. But one of these experiments has accidentally disclosed an experimental fallacy adequate to account for the positive results which have been recorded. In view of the importance which attaches to experiments of this kind in regard to our conceptions of the ætiology of cancer, this experiment will be described in detail.

It is well known that malignant tumours of the mouse, or extracts prepared from them, do not cause malignant disease when injected into fowls. Our own experiments have also convinced us that pancreas or pancreatic extracts of a normal fowl when injected into a fowl do not produce a tumour, and the recent report of Leitch referred to above is in agreement with this. An experiment was therefore planned in which extracts from a mouse tumour were inoculated repeatedly into a normal fowl, which was subsequently to receive an extract from the pancreas of a normal fowl.

In this experiment five chicks of Exp. A had received injections once a week for three weeks of an extract from mouse carcinoma 63. The extract was made by rubbing the carcinoma in a mortar with sand and Ringer's solution, and after spinning the turbid extract filtering it through a Berkefeld filter. The last injection of the mouse tumour extract had been given on May 30th. On the same day a new experiment was started, and the same extract of carcinoma 63 as that given to the five chicks of Exp. A was injected into two new chicks (Exp. B). Four days afterwards the five chicks of Exp. A received an injection of a pancreatic extract from a normal fowl; the two chicks of Exp. B did not receive this pancreatic extract.

A fortnight after the last injection of the carcinoma extract all the five chicks of Exp. A and the two chicks of Exp. B had developed tumours at the site of inoculation of the mouse carcinoma extract. The tumours grew very rapidly, histologically they were identical with the Rous tumour No. 1; they could be transmitted by extracts to other fowls. In fact, the result was exactly as if these

seven chicks had received an injection of an active filtrate of Rous tumour No. 1.

It is clear that the positive result, which resembled those obtained by Carrel, Leitch, Murphy and others, had nothing to do with the injection of the pancreatic extract, because the tumours formed equally well in the two chicks of Exp. B which had received the injection of the mouse carcinoma extract only. The formation of these tumours was therefore clearly associated with the injection of the mouse carcinoma extract on a particular date—namely, May 30th. As soon as this was realised the experimental conditions obtaining on that day were reconstructed from the protocols, with the following result. The experiment just reported had been carried out in the afternoon. In the morning another experiment had been carried out in which an extract had been made from three different Rous tumours and inoculated into fowls. The routine of this laboratory is that the mortars used for preparing these extracts after washing and drying are sterilised. Three sterile mortars are available and all the three mortars had been used in the forenoon. They had then been washed in running water and dried, but there was no time to sterilise them for the experiment in the afternoon. The mortar used in the afternoon for the extraction of the mouse carcinoma had therefore been used in the morning for the extraction of a Rous sarcoma. Sterility of the mortar from *bacterial* contamination was not essential in preparing the extract, as it was passed through a Berkefeld filter before injection. The possibility that the mortar was still contaminated with the Rous "agent" in spite of the washing was not taken into consideration, but the result shows that in spite of the washing it still contained active material from a Rous sarcoma, which must have exhibited virulence of a high order. The virulence of the Rous sarcoma extracts show very wide fluctuations, as was shown by Gye and Andrewes, and has since been confirmed. Baker and McIntosh, for instance, state that filtrates of the tumour give sometimes positive results after the injection of as little as 0·001 c.cm. of the extract contained in 0·5 c.cm. saline, while at other times 1 c.cm. of the extract has failed to produce a tumour.

This experiment emphasises the necessity for all laboratories in which the Rous tumour No. 1 is being propagated of subjecting all apparatus used in experiments on fowls to a process of sterilisation which will ensure the destruction of the "agent." Unless this precaution is observed the inoculation of material which in itself is inactive may by contamination produce a typical Rous tumour No. 1. The experiment here described has been repeated five times, observing the precaution just mentioned. The results were uniformly negative.

Conclusion.

The alleged experimental transformation of normal cells of the fowl into malignant cells by simple chemical substances is based on isolated experiments, in which the tumours produced always had the histological appearances and biological features of Rous tumour No. 1. In view of this peculiar feature and the failure to confirm these results, they must be ascribed to an experimental error similar to that responsible for the positive results obtained in the experiment described in this paper.

Literature.

Baker, S. L., and McIntosh, J.: Brit. Jour. Exp., Path., 1927, viii., 257.
Carrel, A.: Compt. rend. de la Soc. de Biol., 1925, xciii., 1083 and 1278.
Fischer, A.: Ibid., 1926, xciv., 1217.
Fujinami, A., and Inamoto, K.: Zeit. f. Krebsforsch., 1914, xiv., 94.
Gye, W. E., and Andrewes, C. H.: Brit. Jour. Exp. Path., 1926, vii., 81.
Haagen, E.: Arch. f. Zellforschung, 1927, iv., 431.
Laser, H.: Klin. Woch., 1927, vi., 698.
Leitch, A.: Report of Internat. Conference on Cancer, London, 1928, p. 20: 6th Annual Report of the Brit. Emp. Cancer Campaign, 1929, p. 35.
Murphy, J. B.: Report of Internat. Conference on Cancer, London, 1928, p. 33.
Pentimalli, H.: Zeit. f. Krebsforsch., 1916, xv., 111.
Rous, P.: Jour. Exp. Med., 1914, xix., 570.

THE ULTIMATE PROGNOSIS IN CASES OF ECLAMPSIA AND ALBUMINURIA OF PREGNANCY.*

BY JESSIE C. B. SYM, M.D. EDIN.

ECLAMPSIA has long been recognised as one of the formidable risks of child-bearing. From the Registrar's reports for England, Wales, Scotland, and Ireland it appears that, on an average 600 women die annually of eclampsia in these islands. The fœtal mortality is extremely high and, since the disease often appears while the child is still premature, must remain so. The neonatal death-rate is also high. Williams estimates the fœtal mortality at 50 per cent., but considers that not more than one-third of the children leave hospital alive. Further, as 70 per cent. of the eclamptic mothers are pregnant for the first time, 400 women die annually with their first child, and the majority, had they lived, would probably have had other children. Eclampsia, therefore, though a relatively rare disease, is of importance to every community in which it occurs. Moreover, if the surviving mothers are incapacitated, either totally or partially, for further child-bearing, its importance is increased, both to the community and to the individual.

Eclampsia is always severe, but the severity of albuminuria of pregnancy varies from a mild albuminuria in the later weeks to "pre-eclampsia." The prognosis for the mother is fairly good under efficient treatment, but for the fœtus, owing to the frequency of premature labours and stillbirths, it remains poor. Albuminuria is extremely common in pregnancy; excluding the physiological albuminuria of labour it occurs in 3·5 per cent. of all pregnant women. If it affects the health of so large a percentage of child-bearing women it is a serious disease, especially if any ill-effects should persist after pregnancy. If it impairs the ability of the woman to bear future healthy, full-time children, it is from the point of view of the race perhaps more serious than eclampsia.

An attempt has therefore been made to find out what health a woman has after suffering from one of the late toxæmias of pregnancy, and how she fares in subsequent pregnancies.

Eclampsia.

A record has been made of 74 women who had eclampsia and recovered in the Royal Maternity Hospital, Edinburgh, not less than three years ago. All those now surviving have been interviewed and examined. At the time of having eclampsia the average age was 27 years; 58 per cent. were primiparæ and three had eclampsia in two pregnancies. Of the 77 pregnancies which ended in eclampsia only 14 were under medical supervision, which in many cases was of a very perfunctory and inadequate kind. In only 8 cases was there no history of warning symptoms, and it is reasonable to suppose that some of the 63 women who had no antenatal care might, under medical supervision, have been prevented from developing eclampsia. Œdema was the commonest and earliest symptom; headache was the next. The average length of gestation was 38 weeks. All the patients had albuminuria and all had convulsions. The fœtal mortality was 38·96 per cent.

Previous Gestations.—Thirty-one of the 74 women were multiparæ when they developed eclampsia, and they had among them 108 gestations. Of these, 83 were normal, 14 ended in miscarriages, and 11 were complicated by albuminuria. That is to say, six women out of 31 had albuminuria in a pregnancy previous to an eclamptic pregnancy.

Deaths.—Three patients have died—one of a second attack of eclampsia and one of pulmonary embolism after a subsequent pregnancy. The cause of the third death could not be ascertained.

* Part of a thesis accepted for the degree of M.D. at the University of Edinburgh, 1928.

Result of the Examination of the 71 Surviving Patients.—Thirty-nine women appeared to be in good health. Defects noted in the remainder were as follows: anæmia, 12; chronic constipation, 6; advanced pyorrhœa, 7; bronchitis, 1; enlarged thyroid, 2; myxœdema, 1; enlarged chronically inflamed tonsils, 3; dyspepsia, 1; neurasthenia, 1; hemiplegia (result of cerebral hæmorrhage), 1.

All patients examined are of hospital class and therefore the number who have anæmia is high. Nearly all had some oral sepsis. Special attention was given to the cardiac, renal, and vascular systems. The urine was examined, blood pressure readings were made, the blood-urea was estimated, and the urea-concentration test was done. In two (2·8 per cent.) of the patients a diagnosis of chronic nephritis was made. Ten gave at least one result which was below par in one or other of the tests employed (10·9 per cent.). In five cases (8 per cent.) the tests were incompletely done and no deductions could be drawn. The hearts, arteries, and kidneys of 54 patients (76 per cent.) were healthy.

The following list shows how the 12 patients, A to L, whose renal and cardiovascular systems were judged unsatisfactory, fared in pregnancies subsequent to eclampsia.

Pregnancies Subsequent to Eclampsia.

A. 1 normal. 1 albuminuria. 1 in progress, normal.
B. 1 ? normal. 3 albuminuria. 3 miscarriages.
C. No subsequent pregnancies.
D. 1 albuminuria.
E. 1 albuminuria.
F. No subsequent pregnancies.
G. 1 albuminuria.
H. 1 miscarriage.
I. No subsequent pregnancies.
J. 1 albuminuria.
K. 1 albuminuria. 1 miscarriage.
L. No subsequent pregnancies.

These patients all complained of vaguely unsatisfactory health.

It has been shown that if a woman has an impaired renal and cardiac vascular system, her post-eclamptic pregnancies will almost certainly be complicated, but that is far from saying that those whose kidneys are satisfactory have had healthy pregnancies after eclampsia.

Subsequent Pregnancies.—Of the 74 women, 42 were pregnant after eclampsia and had between them 67 gestations. Seven of these gestations are in progress; 6 ended in abortions or miscarriages. There have therefore been 54 labours, of which 48 (88·89 per cent.) ended in live births, and 6 in stillbirths. Four of the stillbirths occurred in cases of albuminuria, one in recurrent eclampsia.

Type of Subsequent Gestation.—Of the 42 women who again became pregnant, 17 (40 per cent.) showed late toxæmia in subsequent pregnancies at least once. Of 67 gestations, 10·45 per cent. are in progress, 53·73 per cent. were normal, 26·87 per cent. were complicated by late toxæmia (22·39 per cent. by albuminuria and 4·48 per by cent. eclampsia), and 8·96 per cent. ended in abortions or miscarriages.

Of these 42 women who have been pregnant after eclampsia, 40 have been pregnant again once, 12 twice, 4 three times, and 1 each four, five, six, and seven times.

Of the 40 *first-subsequent* pregnancies, 25 (62·5 per cent.) were normal, 11 (27·5 per cent.) were complicated by albuminuria, and 2 (5 per cent.) by eclampsia, whilst 2 (5 per cent.) ended in abortion or miscarriage.

Of the 12 *second-subsequent* pregnancies, 9 (75 per cent.) were normal, 2 (16·7 per cent.) were complicated by albuminuria, and 1 (8·3 per cent.) ended in miscarriage.

Of the four *third-subsequent* pregnancies, 1 proceeded normally, 1 was complicated by eclampsia, and 2 ended in miscarriage.

The one *fourth-subsequent* pregnancy was complicated by albuminuria, the one *fifth-subsequent* pregnancy was normal, the one *sixth-subsequent* pregnancy was complicated by albuminuria, and the one *seventh-subsequent* pregnancy ended in miscarriage.

Albuminuria of Pregnancy.

A similar investigation was made of 81 patients who had albuminuria of pregnancy, for which they were treated in the Royal Maternity Hospital, Edinburgh, at some time during the same period—i.e., March, 1921, to March, 1926. The average age of the patients when they first developed albuminuria of pregnancy was 29·6 years, and 69·5 per cent.—58 women—were primigravid when they had their first attack.

Previous Pregnancies.—The 23 multiparæ had had 81 previous pregnancies between them before their attack of albuminuria. These were all normal gestations.

Previous Illnesses.—A record was made of any illness from which these women had suffered before their first attack of albuminuria.

	Patients.		Patients.
Scarlet fever	17	Influenza (severe) ..	2
Diphtheria	2	Anæmia	4
Other exanthemata ..	26	Appendicitis	1
Tuberculosis	3	Typhoid	2
Bronchitis, pneumonia, pleurisy	9	Syphilis	4
Rheumatic fever, chorea	3	Dysmenorrhœa ..	2

Deaths.—Of the 81 patients, 3 (or almost 5 per cent.) have died, one of a gastric ulcer, another of antepartum and postpartum hæmorrhage—this patient was a 3-para and both previous pregnancies had been complicated by albuminuria—and the third of a cerebral hæmorrhage two months after delivery.

Result of the Examination of the Surviving 78 Patients.—Thirty-three are in good health and seven have poor health. Five of these react unfavourably to the renal and cardiovascular tests; one has active tuberculosis and one refuses to have any examination made. Four patients volunteered the statement that their health "was good except when they were pregnant," at which time they have an indefinite feeling of tiredness from the fourth month onward. All these patients show good renal test results and each has had albuminuria in every pregnancy she has undergone. Thirty-eight patients have indifferent health, which was found to be due to one of the following causes: anæmia, syphilis, heart lesions of rheumatic origin, pituitary deficiency, hyperthyroidism, toxic goitre, dysmenorrhœa, menopausal symptoms, cervicitis, menorrhagia, uterine fibroids, tuberculosis, neurasthenia, bronchitis, advanced pyorrhœa, chronic constipation.

The same attention was given to the cardiac, vascular, and renal systems as in the women who had had eclampsia, and the same tests were done. In six cases a diagnosis of chronic nephritis was made and five more cases gave poor results in at least one test in each case. This result may be compared with that obtained in the eclamptic series:—

	Good results of tests.	Poor results of tests.	Tests incompletely done.
	Per cent.	Per cent.	Per cent.
Eclampsia series ..	76	16·9	8
Albuminuria series ..	81	13	6

Table I. shows how the 11 patients whose renal and cardiovascular test results were considered unsatisfactory fared in their pregnancies.

It will be seen from this table that once an abnormal pregnancy has occurred it has only been followed in one instance—and that a doubtful one—by a normal pregnancy. Patients who fail to react to these tests are almost certain to fail under the test of pregnancy, in this series as in the first. Only two of these 11 cases have had scarlet fever.

As in Series I., therefore, patients with unsatisfactory tests develop toxæmia when pregnant, but, again as in Series I., the fact that the non-gravid, post-toxæmic patient has satisfactory test results does not mean that she will pass normally through a subsequent pregnancy. This is even more obvious in the second series.

Type of "First Abnormal" Pregnancies.—Of the 81 women who were pregnant, 8 miscarried and 53 of the 73 labours were spontaneous. Premature labour occurred in 31 cases. 76 children were born (twin pregnancy occurred thrice in the series), and 18 (i.e., 23·7 per cent.) were stillborn.

Risks to Mother in Subsequent Pregnancy.—Of the 81 mothers, 30 did not become pregnant again after one attack of albuminuria. The remaining 51 women have had altogether 90 subsequent gestations, and 2 (or 3·92 per cent.) have died.

TABLE I.

	Pregnancy—						
	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh
A	Alb. + +	Alb. + + +	Alb. + +	—	—	—	—
B	Misc.	Alb. + + +	Alb. + +	—	—	—	—
C	Norm.	Norm.	Norm.	Alb.	Misc. c. alb.	Alb. +	—
D	Norm.	Norm.	Norm.	Norm.	Norm.	Alb.	—
E	Alb. +	Alb. + +	Alb. +	Misc. c. alb.	Alb.	—	—
F	Norm.	Alb. + + +	Alb. + + +	Alb. + +	—	—	—
G	? Alb. +	Alb. + +	? Alb. + + +	? Norm.	Alb. + + +	Alb. + + +	Alb. +
H	Norm.	Norm.	Norm.	Norm.	Norm.	Alb. + + +	—
I	Alb. +	Alb. + + +	—	—	—	—	—
J	Norm.	Norm.	Norm.	Norm.	Alb. + +	—	—
K	First ten pregnancies, normal; eleventh, miscarriage; twelfth, albuminuria.						

Alb. = Albuminuria. Misc. = Miscarriage. Norm. = Normal.

Risk of Mother Developing Albuminuria Again.—Of the 51 women who became pregnant after one attack of albuminuria, 28 (i.e., 55 per cent.) showed late toxæmia in at least one of their subsequent pregnancies.

Chance of Living Child in a Subsequent Gestation.—Of the 90 subsequent gestations, 6 are in progress and 14 ended in abortion or miscarriage. Of the 70 subsequent labours, 61 terminated in live births and 9 children were stillborn (12·9 per cent.). All cases of stillbirth were associated with albuminuria.

Types of Subsequent Pregnancies.—There have been 90 gestations subsequent to one attack of toxæmia. Of these, 44 were complicated with albuminuria (5 doubtfully), 26 were normal, 14 ended in abortion or miscarriage, and 6 are in progress (5 normally, 1 abnormally). Albuminuria has therefore occurred in 48·89 per cent. of these cases and abortion or miscarriage in 15·56 per cent., while 28·89 per cent. were normal and 6·6 per cent. are in progress.

First-subsequent Pregnancies.—Of these 51 gestations, 21 (41 per cent.) were normal, 24 (47 per cent.) were complicated by albuminuria, 6 ended in abortion or miscarriage, and 1 is in normal progress. In the 45 labours 7 stillbirths occurred, all in association with albuminuria.

Second-subsequent Pregnancies.—Of 22 gestations, 5 (22·6 per cent.) proceeded normally, 10 (45 per cent.) were complicated by albuminuria, 3 are in normal progress, and 4 ended in abortion or miscarriage. Stillbirths occurred in 2 of the 15 labours, both in association with albuminuria.

Third-subsequent Pregnancies.—Of 10 gestations, 1 proceeded normally, 6 were complicated by albuminuria, 3 ended in abortion or miscarriage, and 1 is in normal progress.

Fourth-subsequent Pregnancies.—Of three gestations, one was complicated by albuminuria and one ended in miscarriage. The third is in progress and the patient has albuminuria. Thus only one gestation has terminated in labour, and the child was stillborn.

Fifth-subsequent Pregnancies.—Both gestations were complicated by albuminuria.

Sixth-subsequent Pregnancies.—Of two cases, one ended in miscarriage and one was complicated by albuminuria.

The chance that albuminuria will recur in a subsequent pregnancy is thus seen to be very great. There is a definite predisposition to recurrence after one attack, but in only a small number of those who develop the disease—even of those who develop it several times—is it possible to detect any renal or other impairment when the patient is non-gravid. More than half the gestations subsequent to one attack of albuminuria of pregnancy are abnormal; more than half the women who become pregnant after one attack develop toxæmia again. But the women, like those of Series I., appear and remain well for the most part so long as they are not pregnant.

The figures obtained in the two series may be compared (Table II.).

TABLE II.

Gestations subsequent to first attack of toxæmia.	First series (per cent.).	Second series (per cent.).
Albuminuria	23·39	48·89
Eclampsia	4·48	—
Normal	53·73	28·89
Abortion or miscarriage	8·96	15·56
Gestations in progress	10·45	6·6
Chances of a living child in subsequent gestations (calculated per 100 labours)	88·89	87·1

Comment.

It has been shown that recurrence of late toxæmia is commoner after albuminuria than after eclampsia, but if the two series are taken together 37·9 per cent. of the subsequent gestations are complicated by late toxæmia. As toxæmia of this type occurs in roughly 2·5 per cent. of all pregnant women, there is a definite predisposition to a recurrence after one attack, especially when it is remembered that two-thirds to three-quarters of all toxæmic conditions are found in primiparæ. First pregnancies form from one-quarter to one-fifth of all pregnancies; thus the liability to toxæmia is ten times as great in primiparæ as in multiparæ.

In only a small number of cases can the tendency to develop toxæmia be explained by the presence of nephritis.

The prognosis for a woman who has suffered from eclampsia is—as far as further childbearing goes—better than that for a woman who has had albuminuria.

Among the cases grouped as "albuminuria of pregnancy" various types are found. If these could be differentiated the difference in prognosis would be further stressed. Amongst them are:—

(1) *Cases with an Undoubted Renal Basis.*—Renal impairment is present before, aggravated by, and persists after, pregnancy. Subsequent pregnancies increase the damage. A stillbirth or a miscarriage is the probable end of the pregnancy.

(2) *Cases of Acute Toxæmia.*—The prognosis as regards the future of these cases is the same as that for cases of eclampsia. Could these cases be eliminated from the series of albuminuria of pregnancy the percentage of recurrence of toxæmia in the remainder would be increased.

(3) When cases belonging to the two foregoing groups have been excluded a large number of *cases of unknown origin* remain. During the toxæmic pregnancy the kidney may be apparently greatly damaged, but its capacity for recovery is apparently very great and all signs of disease disappear in the puerperium. No signs appear unless the patient is pregnant again. That is to say, if the criterion of cure is the ability of the individual to remain healthy in a subsequent pregnancy, cure is incomplete. Under the stress of pregnancy the kidney will again show signs of disease. If permanent traces of kidney damage do at length remain in the puerperium these are indistinguishable from ordinary nephritis of the "mixed" type.

The practical outcome of an inquiry such as this is to emphasise the importance of the work of the antenatal and postnatal clinics. While knowledge of the changes which occur in the normal pregnant and puerperal woman are so scanty, knowledge of the toxæmic and post-toxæmic patient can only be incomplete. The benefit to the toxæmic patient herself cannot be overestimated. The incidence of eclampsia is enormously reduced in the presence of antenatal care, though fulminating cases still occur. Mild forms of toxæmia are dealt with and discovered early. A precise knowledge of the time and mode of onset of a toxæmia is invaluable in assessing the dangers of continuing the pregnancy. It is also invaluable in classifying the toxæmia—a classification which can only be made by the postnatal observer.

No accurate ultimate prognosis should be attempted without it, and, if future pregnancy occurs, it is also very valuable information.

The work of the postnatal clinics is no less important. If the return to normal is incomplete, succeeding pregnancies will certainly not be normal and, should pregnancy occur, the patient's chances of bearing a live child are much poorer than those of the healthy woman. If the return to normal is slow it is likely that a subsequent pregnancy will be abnormal. Even if the return to normal is rapid the possibility that the succeeding pregnancy will be toxæmic is greater than in a woman who has had normal pregnancies or who is a healthy primipara. For the furtherance of knowledge, as well as for the benefit of the individual patient, all post- and antenatal information should be laid side by side.

In view of the danger which the toxæmic patient runs the value of induction of labour must be emphasised, particularly induction after viability of the child has been reached in a patient who is known to have had one toxæmic pregnancy. In this case the child's interests march with the mother's. Non-interference gives little practical gain and may result in great loss. It is impossible not to think that many cases of albuminuria are carried on foolishly long. An obstetrician should always seriously consider induction in every case of albuminuria which has persisted, despite treatment, for over three weeks, even if the case presents no acute features.

Scheme for Observation of the Toxæmic Case in the Puerperium.

1. Patients should be kept in hospital for at least three weeks postpartum. Regular urinary analysis and blood pressure readings should be made. Before discharge the fundi oculi should be examined and a urea-concentration test done. If any of these results are abnormal blood analysis should be made. The patient's general condition should be noted and a tentative diagnosis made of the type of toxæmia.

2. Three months postpartum the patient should report at the postnatal clinic. Her general condition and her symptoms, if any, should be noted. A urinary analysis and a blood pressure reading should be taken and, in the presence of abnormality, a blood analysis and an ophthalmoscopic examination as well. The diagnosis should be reviewed and corrected if necessary.

3. If the patient has apparently recovered completely at the time of the second examination, she should report again one year after delivery. If she shows any abnormality she should report 6 and 12 months after delivery, and each time the same examination should be made. Changes which persist for a year may be regarded as permanent and the patient classified accordingly.

4. In the event of a subsequent pregnancy all postnatal data should be placed, with the diagnosis of the type of toxæmia, in the hands of the attending obstetrician.

5. All patients who have had late toxæmia of pregnancy of any degree should be instructed to report to the antenatal clinic if they know, or suspect, that they are pregnant.

Long-continued observation of the post-toxæmic patient is necessary for an accurate classification of the toxæmia, for an accurate ultimate prognosis in the individual, and for an effective guide to treatment in future pregnancies.

Summary.

1. About a quarter of the pregnancies which occur after eclampsia are complicated by some degree of toxæmia. 2. Almost half the pregnancies which occur after albuminuria are complicated by some degree of toxæmia. 3. The earlier albuminuria begins in pregnancy and the longer it persists the more likely is it to cause renal damage and to recur in a future pregnancy. 4. Recurrence of toxæmia occurs in the absence of any detectable trace of renal impairment. 5. If traces of renal damage are absent, and if patients do not become pregnant they remain in good health.

I am much indebted to the medical staff of the Maternity Hospital, Edinburgh, for access to records of cases, and for permission to examine patients at the hospital.

THE CLINICAL PICTURE PRODUCED BY SUBACUTE MENINGOCOCCAL SEPTICÆMIA.

BY C. LAWSON STOTE, M.B. CAMB., M.R.C.S. ENG.

RECENT bacteriological investigations have shown that meningococcal meningitis may often be preceded or accompanied by a septicæmia of relatively short duration and of secondary importance. On the other hand, primary meningococcal septicæmia may occur with or without meningeal involvement, the septicæmia being the striking clinical feature. These latter cases may be classified in the following way:

1. *Acute Septicæmia.*—Localisation of meningococci in the meninges occurs a few days after the onset of septicæmic symptoms. The onset is sudden, there are very marked septic symptoms, great prostration, and usually a petechial rash. Death occurs in a few hours or a few days. Meningococci may be cultured from the blood. Andrewes in 1906 was one of the first to describe a case of this type.

2. *Subacute Septicæmia.*—This group includes cases of meningococcal septicæmia which run a course of from one to several months' duration. They may be further subdivided into: (*a*) those cases which eventually show meningeal involvement; (*b*) those associated with infective endocarditis; (*c*) those exhibiting the features of a pure septicæmia without metastases.

It is the clinical picture presented by this second group of subacute cases that I wish to describe, particularly those which show a pure septicæmia without metastases. The reason for treating these cases separately is that they all reveal themselves by a well-differentiated clinical picture, which renders their diagnosis comparatively easy. The condition has not received much attention in this country, and though it is probably rare it seems likely that the majority of cases are unrecognised.

Rolleston, in an extensive survey of all types of meningococcal infections, briefly shows that "intermittent meningococcic fever" due to septicæmia may (*a*) last for weeks without any meningitic symptoms, or (*b*) may follow meningitis, or (*c*) show transient meningitic symptoms, or (*d*) terminate in meningitis, but states that a correct diagnosis is seldom made in the absence of meningitic symptoms.

Graves, Dulaney, and Michelson, in publishing a case of chronic septicæmia in which meningococci were present in the blood and cerebro-spinal fluid and which recovered after about three months' pyrexia, state that 13 cases of subacute or chronic meningococcal septicæmia have been described in the American literature. Of these, three, ending in death, had associated endocarditis (those of Warfield and Walker, Cecil and Soper, and Dock); four had septicæmia with a secondary meningitis for a varying length of time and recovered, while the remaining six had septicæmia without involvement of the heart or meninges. These last, which were described respectively by Bray, Herrick, Morgan, Bloedorn, Neergaard and Marlow, all had intermittent temperatures for two to five months, but eventually became quite well. The authors state that subacute or chronic meningococcal septicæmia shows a triad of symptoms consisting of intermittent fevers with rigors, skin eruptions, and arthropathies. The eruptions come in crops with a rise in temperature, and may be either purpuric, macular, or papular.

The joint pains are usually slight, without physical signs, but there may rarely be the formation of fluid.

In March, 1928, O. Herman and M. Eifschitz recorded a case in a man aged 30 who had remittent fever, erythematous eruptions on the limbs, no physical signs, and a relatively good general condition. A pure culture of meningococci was obtained from the blood, and the man made a spontaneous recovery. These authors quote Friedemann and Deicher as stating that the characteristic features of meningococcal septicæmia are:

1. Nasal, pharyngeal, or bronchial catarrh.
2. Fever, remittent at first and then irregular, lasting from one to several months.
3. Erythematous eruptions.
4. Protracted course without physical signs.
5. A relatively good general condition.

G. Mahieu in 1928 collected seven cases which appeared to be subacute meningococcal septicæmia. In three of these meningococci were present in the blood and there was no meningeal involvement, in one case the organisms were recovered both from the blood and the cerebro-spinal fluid; and in two the blood culture was negative, but the organisms were obtained from the cerebro-spinal fluid. In the seventh case no organisms were isolated but the symptoms were analogous to those of the other six. All these cases showed remittent temperature running a subacute course (from two to five months), accompanied by joint and muscular pains without physical signs, and erythematous eruptions, especially on the limbs and face. All the cases made a complete recovery.

Two New Cases.

I wish to describe two cases of subacute meningococcal septicæmia I had under my care at the London Hospital while I was house physician. By a remarkable coincidence I admitted both cases from the receiving room on the same day, and as they were in the same ward throughout their illness I had a unique opportunity of noting the similarity of the two. Both were boys; they came from entirely different neighbourhoods of London and had not been associated with each other outside. There was no epidemic of cerebro-spinal meningitis at the time. I am greatly indebted to Dr. Robert Hutchison for giving me permission to publish these two cases, and also to Dr. G. T. Western for allowing me to quote the results of the blood cultures.

CASE 1.—A schoolboy, aged 7, was admitted to the London Hospital on Nov. 17th, 1927.

History.—His mother said he had been quite well until five weeks before, when he had gone off his food and begun to feel unwell. At the same time a rash had appeared on his hands, arms, legs, and face. This had consisted of scattered, non-irritating spots, none of which had appeared on the trunk. Some spots had faded, while new ones had made their appearance in crops ever since the onset of the illness. All this while (five weeks) he had been kept in bed and the doctor stated that he had had a swinging temperature, up to 103° F. at night. Pains had been present all the time in the large joints of the arms and legs. These had never been severe, and flitted about from joint to joint, rarely being more than a day in any one joint. The joints had never been red or swollen. He had vomited after food every day until a week before, but not since. These had been ordinary food vomits. The bowels were regular and there was no diarrhœa. At no time were there any headaches, sore-throat, backache, or earache. There had been no discharge from the eyes or nose, and no shivering attacks were noticed. The only previous illness he had had was measles when 2 years old. The mother and father were alive and healthy. There were five other children alive and well, and three had died, two of pneumonia and one of scalds.

On admission he appeared as a slightly-built little boy, somewhat pale but not anæmic or under-nourished. The tongue was moist and clean and the throat clear. The eyes were not inflamed. There was no evidence of nasal or bronchial catarrh. There was a pink papular eruption copious on the face, arms, and legs, sparse on the buttocks and back, and absent from the chest and abdomen. Each papule consisted of a uniformly coloured, slightly raised, rose-pink area, varying in size from that of a pin's head to that of a threepenny piece. A very few had punctate purpuric centres. They were not irritating. There was no pain or swelling of any joint. The spleen was not palpable and nothing abnormal was found in the abdomen, heart, or lungs. Nothing abnormal was found on examination of the central nervous system and there was no clinical suggestion of meningeal infection.

Course of Illness.—The temperature was 100·5° F. on admission. For the next ten weeks the temperature was swinging between normal and 102° to 103°. The highest temperature usually occurred in the evening, but occasionally in the morning. Every now and again a period varying between one and four days would pass without pyrexia. During the following three weeks (Jan. 26th to Feb. 16th) there was an occasional rise up to 100° F. After this the temperature settled. The pulse-rate throughout remained at just over 100 per minute, and the respiration-rate at a little over 20.

Throughout the period of pyrexia the patient appeared remarkably well, considering the temperature he was running. He would sit up in bed all day long, play with his toys, laugh and joke with the other boys in the ward, and sleep and eat well. It was only for a few hours every second day or so that he would appear tired and rather ill, and would lie down, become quiet, and lose interest. These periods would always coincide with a "peak" in the temperature chart and usually with the complaint of joint pains, either in the legs or arms. The day following would usually yield a fresh crop of spots. The rash had the same characteristic throughout and never completely vanished until the temperature finally settled. One crop of papules would start to fade three or four days after its appearance and then be succeeded by a second. The rash was chiefly confined to the limbs and face, was sparse on the buttocks and back, and never appeared on the chest or abdomen. At times a very few of the papules would show a definite punctate purpuric centre. The spleen became just palpable at the beginning of December (the eighth week of the disease). The edge could be felt quite distinctly for a day or two, but was not felt again after this. The heart sounds remained normal throughout. There were no signs at all indicating any meningeal infection. The slight headaches complained of at times were never severe. Joint pains would come and go from day to day. One of the large joints of the arms or legs would be affected for a day at a time, causing pain on movement, but no swelling or redness. The pains were never very severe and would not keep him awake at night. They disappeared with the fall of temperature.

When he was discharged from hospital on May 15th, 1928, there were no physical signs of disease and he appeared quite well in himself.

The following *special investigations* were undertaken while he was in hospital. The blood culture on Nov. 17th and Dec. 31st, 1927, and on Jan. 10th and 24th, 1928, yielded a Gram-negative diplococcus which from all its characteristics appeared to be the meningococcus. It was agglutinated by meningococcal serum, group 4. The blood culture was sterile on Feb. 26th, after the patient had been afebrile for 14 days. Lumbar puncture was performed on Nov. 30th. The fluid was clear, not under excessive pressure, and on microscopic examination showed no cells or organisms. There was no excess of protein and the cultures were sterile.

A blood count on Nov. 17th showed: 4,800,000 erythrocytes and 5860 leucocytes per c.mm.; hæmoglobin, 72 per cent., and a colour-index of 0·76. A differential count of the white cells showed: polymorphonuclear leucocytes, 58·6 per cent.; small lymphocytes, 30 per cent.; large lymphocytes, 8 per cent.; and large hyalines, 3 per cent. The Wassermann reaction in the blood on Nov. 23rd was negative. The urine remained clear throughout.

An autogenous vaccine was prepared from the organisms from the blood culture and was given as follows: Dec. 16th, 25 minims; 22nd, 25 minims; 30th, 50 minims; Jan. 14th, 100 minims. No reaction followed any of the injections.

CASE 2.—A shop errand boy, aged 15, was admitted to the London Hospital on Nov. 17th, 1927.

History.—For the preceding two months he had had a rash which had first appeared on his chest and had spread after one week to his limbs. It had gradually cleared from the body, but remained on the limbs. It had consisted of rose-red, non-irritating spots up to 1 cm. in diameter. He had not felt well in himself but had remained at work until one week before, when he had had a sore-throat and been in bed for one day. Four days earlier he had begun to have pains, moving from joint to joint, starting in the ankles, and then going to the knees and wrists. There had been no swelling of the affected joints. His appetite had remained good throughout and his bowels normally opened. There was no history of any discharge from the ears, nose, or penis, and no headaches or shivering attacks. He had had "fits" when a baby up to the age of 3 years. From this age onwards until he was 9 years old his eyes had given him trouble, for which he had attended a hospital and had injections for treatment. His mother and father were alive and healthy and there were five other healthy children.

On admission he appeared a rather pale, definitely ill-nourished lad, with a white-coated tongue. Each eye showed scars of central corneal ulcers, and there was a certain amount of catarrhal conjunctivitis. There was no evidence of congenital syphilis. The tonsils were slightly enlarged but not infected. There was a rash on the arms, legs, and thighs consisting of a sparse, diffuse papular eruption, the spots being slightly raised rose-pink papules up to 1 cm. in diameter. None was purpuric and they were not irritating or painful. There were no spots on the face or trunk. There was pain on movement of the knees, ankles, and wrists, but no swelling or redness. There were no rheumatic nodules. The spleen was not palpable, and there was nothing abnormal in the abdomen, heart, or lungs.

Course of Illness.—He had a temperature of 101° F. on admission, but this came down within three days and remained normal for four days. For the following four days he had a swinging temperature—98° F. in morning and up to 103° F. at night—culminating in a rigor on the evening of the tenth day after admission. There was a swinging temperature for the next ten days (up to 102·6° F. at night), and it then settled to normal at the beginning of the fourth week after admission (the twelfth week of the disease). There was no further pyrexia. The pulse-rate varied between 70 and 86, and the respirations averaged 20 per minute throughout. The rash on the face and limbs disappeared within three or four days with the fall of temperature, and at this time he appeared quite well in himself. Within a week increasing temperature at night was accompanied by a fresh crop of papules on the limbs and face and a few on the buttocks and back. The rigor on the twelfth day was followed by a third crop of papules—the last to appear—and these faded gradually and disappeared within ten days. Throughout the pyrexial period the patient remained well in himself, would sit up in bed, amuse himself by drawing, and talk and joke with the others in the ward. A few hours before and after the rigor he was quiet, went off his food, and lay listlessly in bed. The joint pains that were present on admission disappeared in three to four days and no definite joint pains were noticed after this. On Dec. 6th (the twentieth day after admission) he had quite a severe backache which lasted all day and radiated downwards to both thighs. There was some pain on movement of either hip-joint. The heart remained clear throughout and the spleen was never palpable. A few days before he was discharged he developed a phlyctenular ulcer at the edge of the left cornea. Otherwise he was well.

No treatment by drugs or vaccines was attempted.

The following *investigations* were carried out.

The blood culture on Nov. 25th, 1927, yielded a Gram-negative diplococcus identical with that obtained from the first case. On Dec. 20th (after the patient had been afebrile for ten days) the cultures were sterile.

On Nov. 30th lumbar puncture gave a clear fluid, not under pressure. It contained no cells or organisms and the cultures were sterile.

A blood count on Nov. 25th showed 4,900,000 erythrocytes; a hæmoglobin percentage of 78; a colour-index of 0·79; and 12,400 white cells; of which 66 per cent. were polymorphonuclear leucocytes, 21 per cent. were small lymphocytes, 5 per cent. were large lymphocytes, 6 per cent. were large hyaline, and 1 per cent. were eosinophils. The Wassermann reaction on Nov. 22nd was negative. The urine was clear throughout the illness.

The symptoms and physical signs in the two cases were closely similar in all important respects. Also, the course which the disease pursued was almost identical in both boys. In both the blood culture grew typical meningococci during the height of the disease, and in both the cultures became sterile as the disease subsided. In neither was there any alteration in the cerebro-spinal fluid, nor were any organisms found in it, while in no single symptom was meningeal involvement suggested. There was nothing pointing to any other infection or localisation of disease. It is thus reasonable to suppose that the symptoms and physical signs present were due directly to meningococcal septicæmia and to this alone.

The Clinical Picture.

The signs and symptoms in each case formed a clinical picture different in many essential respects from that shown by other septicæmias. As there was no involvement of the central nervous system, neither clinically nor bacteriologically, and no other signs usually associated with the ordinary meningococcal infection—i.e., meningitis—one is justified in regarding this condition of subacute meningococcal septicæmia as a well-differentiated disease, running a definite course. Arguing from the close similarity of these two cases, one obtains the following picture of the condition.

The onset is insidious, and the first indication that a grave disorder is present may be the swinging temperature, which is remittent in character, with a daily variation of 5 or 6 degrees Fahrenheit or less. Rigors may occur. Apparently the temperature continues for a few months—in one case it was three months, and in the other four and a half—finally, becoming normal as the other symptoms subside. Probably the most striking feature is the relatively very good general condition of the patient. With such a temperature one would expect the general condition to be definitely bad, but both these patients were bright, lively, and cheerful throughout, and there was no "ill-look" about them. The rash seems to be fairly characteristic, but in some respects resembles erythema nodosum. The distribution is peculiar, being almost confined to the limbs and face. The spots are scattered, rose-red papules, appearing in crops usually corresponding to extra high "peaks" in the temperature chart. They are non-irritating and disappear without leaving any discoloration. The joint pains are transitory, not very severe, and unaccompanied by any physical signs in the joints. They occur in any of the large joints of the limbs, passing from one joint to another and not remaining more than a few days in any one joint.

In all these particulars these two cases exhibit similar symptoms and follow similar clinical courses to the cases of subacute meningococcal septicæmia recorded by other observers.

Conclusions.

1. Subacute meningococcal septicæmia, when uncomplicated by metastases, gives a clinical picture which is peculiar to the condition, forming a definite clinical syndrome.

2. It is characterised by: (*a*) remittent fever, lasting from a few weeks to several months; (*b*) a rash, consisting of small papules which come out in crops, especially on the limbs and face; (*c*) joint pains, moving from joint to joint, appearing with a rise of temperature and disappearing during defervescence; (*d*) absence of physical signs; (*e*) relatively extremely good general condition of the patient; (*f*) an excellent prognosis.

3. Meningeal infection need not occur during a meningococcal septicæmia of this type.

References.

Andrewes, F. W.: THE LANCET, 1906, i., 1172.
Rolleston, H. D.: Ibid., 1919, i., 541.
Graves, W. R., Dulaney, A. D., and Michelson, I. D.: Jour. Amer. Med. Assoc., 1929, xcii., 1923.
Warfield and Walker: Quoted by Rolleston, loc. cit.
Cecil, R. L., and Soper, W. B.: Arch. Int. Med., 1911, viii., 1.
Dock, W.: Jour. Amer. Med. Assoc., 1924, lxxxiii., 31.
Bray, H. A.: Arch. Int. Med., 1915, xvi., 487.
Herrick, W. W.: Ibid., 1919, xxiii., 409.
Morgan, H. J.: Bull. Johns Hopkins Hosp., 1921, xxxii., 245.
Bloedorn, W. A.: Jour. Amer. Med. Assoc., 1921, clxii., 881.
Marlow, F. W.: Ibid., 1929, xcii., 619.
Neergaard, A. E.: Med. Clin. North Amer., 1925, ix., 461.
Hermann, O., and Eifschitz, M.: Deut. Med. Woch., 1928, liv., 355.
Friedemann, U., and Deicher, H.: Ibid., 1926, lii., 733.
Mahieu, G.: Thèse de Paris, 1928, No. 16.

ST. MARY'S HOSPITAL.—It is pointed out in the annual report that the recent extension has necessitated the employment of a larger number of nurses, and that since there is no room for them they have been temporarily housed in the isolation ward. The need of additional accommodation for the nursing staff is consequently urgent. There are now 302 available beds, 263 of which during the past year were constantly occupied. The 4575 in-patients stayed an average of 22 days, and cost £14 10*s.* 6*d.*; there were 46,446 new out-patients, who cost 6*s.* 1*d.* each. The tuberculosis dispensary continued to do good work; there were 231 new cases.

THE THERAPEUTIC VALUE OF IRRADIATED MILK IN THE TREATMENT OF RICKETS.

By CHALMERS WATSON, M.D., F.R.C.P. Edin.,
SENIOR PHYSICIAN, ROYAL INFIRMARY, EDINBURGH;
AND
T. Y. FINLAY, M.D., F.R.C.P. Edin.,
CLINICAL OFFICER, CHILD WELFARE DEPARTMENT, EDINBURGH CORPORATION.

With a Radiological Report by
J. B. King, M.D., M.R.C.P. Edin., D.R.,
SENIOR ASSISTANT RADIOLOGIST, ROYAL INFIRMARY, EDINBURGH.

Progress in our knowledge of the ætiology of rickets in the past few decades may be briefly summarised as follows. Dr. Palm in 1890 published a memoir in which, on the strength of observations made on the frequency of rickets in Edinburgh, contrasted with its incidence in sunnier climes, he suggested that rickets was due primarily to lack of sunshine. Little attention was paid to this view, the suggestion being lost sight of until quite recently. In 1919 Huldschinsky published a paper on the cure of rickets by means of the artificial alpine sun. This was followed by numerous papers at home and abroad confirming Huldschinsky's results. In 1926 Huldschinsky wrote as follows:

"The sunlight of which our children are deprived through our narrow alleys and sunless streets must be given them in the form of artificial alpine sun. The necessity is great and urgent that every child, whether manifesting symptoms of rickets or not, should undergo irradiation treatment for at least a month during its first year. The expense incurred will be amply repaid by the improvement of the whole nation."

Prof. H. Steenbock, of Wisconsin University, discovered a method of putting sunlight into cereals, milk, and other food products. Dr. Alfred Hess, of New York City, applied this clinically with milk and recorded notable results from its use in rickets. The unfavourable taste of the milk after irradiation was a deterrent to this method being employed to any extent. Within the last three years, however, important improvements have taken place in the method of irradiation, and there are now several processes which can irradiate milk successfully without injuring its flavour. Prof. K. Scheer, of the Children's Clinic, Frankfurt, using the "Scholl" system, has recorded striking results from the use of irradiated milk in the treatment of rickets. Scheer's results have been fully confirmed by numerous German writers, with the result that various municipalities in Germany have made provision for the supply of irradiated milk in their areas. Scheer pointed out that irradiated milk has the great advantage over various commercial products that there is no need for concern regarding weakening of the antirachitic principle with keeping since the milk is always consumed in a fresh condition. To quote Scheer's words: "The outstanding advantage over all other methods in my opinion and the reason why I have given such long and intensive consideration to this question, lies in the possibility of prophylactic treatment of rickets."

So far as we are aware, the strikingly favourable results recorded by numerous German workers from the use of irradiated milk have never been challenged, although a note of warning has often been sounded about the possible injurious results of excessive or indiscriminate use of irradiated milk and various irradiated medicinal products, more especially in children. With the exception of a few isolated and inconclusive observations, little or no attention has been directed to this subject by clinicians in this country, and in the past six months we have carried out a series of observations with the object of confirming or otherwise the results recorded by German authorities.

Methods of Irradiation.

There are at least five recognised methods of irradiation, known by the name of Scholl, Scheidt, Buhtz, Wamoscher, and Vita ray lamps. In the Scholl system the milk is irradiated in an oxygen-free atmosphere, the oxygen being removed by admixture with CO_2 gas. The milk is irradiated in a water-cooled chamber, the ultra-violet rays being furnished by a quartz mercury-vapour lamp, the milk, in a very delicate film, flowing over a surface 3 inches from the lamp. The time of exposure to the rays is 45 seconds. The taste of the milk is slightly modified, giving the impression that a little soda-water has been added. Its physical properties seem to be also slightly modified; it appears to be somewhat thinner than the untreated milk. This is apparently due to some alteration in the fat globules of the milk. The bacteriological content of the milk was found on frequent examination to be reduced by about 70 per cent.

In Scheidt's apparatus the milk runs from the bottom to the top directly the length of a long quartz tube. For the production of the ultra-violet rays a high-tension electric current is used, which is sent through a vacuum pipe filled with argon gas. With the Scheidt process the irradiation takes place in the cold, and it is therefore spoken of as "the cold process." The flavour of the milk is unaltered.

Our experience is limited to these two forms of apparatus. Milk is successfully irradiated by both these processes. In the first series of 12 cases treated, which form the basis of the present communication, the irradiation was effected by the Scholl apparatus; in a subsequent series no less favourable results followed the use of "the cold process."

Clinical Observations.

A series of 12 cases was selected, six of which were treated in the wards of the Royal Infirmary, while the remaining six were in-patients in the Victoria Children's Home, a part of the child welfare scheme of the Edinburgh Corporation. The ages of the children ranged from 2 to 5 years. Of the last six, four were selected as being specially suitable for the test, from the fact that they had been under indoor treatment for periods ranging from three to five months, and had proved unusually refractory to treatment, which had included, in various combinations, ultra violet rays, ostelin, irradiated ergosterol, and irradiated cod-liver oil. These four cases provided a useful control, as the milk supplied to the home is high-grade milk from the tubercle-tested herd of the Corporation. While the general conditions and the condition of the joints of these four children had undergone improvement, their progress had been disappointing, the radiological appearances of one of them, after five months' treatment, being indicated in Fig. 7.

All the 12 cases were good examples of pronounced rickets; eight of them were treated de novo, the other four, as stated, having been under skilled hospital treatment for a considerable period before the administration of the irradiated milk. In these four cases all the medicinal and other special antirachitic measures in use were stopped, the same diet being continued, with the exception that 6 oz. of irradiated milk replaced 6 oz. daily of the unirradiated high-grade milk in previous use. The dietary in these four cases included 18 oz. of milk daily, the proportion of irradiated to unirradiated milk being 1 in 3. In the remaining eight cases milk entered more largely into the dietary, 36 oz. of milk being given daily, of which one-half was irradiated. The irradiated milk was supplied from the milk of a Certified milk dairy, the irradiation being carried out under the personal supervision of one of us. Frequent radiological examinations were made at short intervals, a standardised technique being employed to eliminate, so far as possible, all experimental error. Attention was directed mainly to the condition of the wrists, knees, and ankles.

Rapid improvement took place in the condition of the joints, occurring uniformly in all the cases treated.

Within 14 days of starting to give irradiated milk it was clear that a remarkable curative influence was at work. In cases of moderate severity radiological evidence of cure was obtained within four to six weeks, and in extreme cases within six to eight weeks. The manner in which the disorderly growth of the cells and imperfect ossification characteristic of rickets gave place to orderly growth and a normal radiographic appearance was surprising. An all-round improvement in the general condition accompanied this change, this being evident by increased muscular tone and activity, and improvement in the mental state of the children. Within seven weeks of the commencement of treatment it was possible to give a demonstration (in the Radiological Department of the Royal Infirmary) of the results of the treatment, which carried conviction to all who saw it. A general impression of the rate of progress may be gained from the series of illustrations appended. A short account of the radiographic findings is here given, after which two illustrative cases are recorded in some detail.

Radiological Report by Dr. King.

The pathological changes occurring in the bones in rickets lend themselves very readily to demonstration by X rays, and it has long been recognised that the efficacy of any form of treatment may well be gauged by the degree of improvement as shown radiologically.

The pathological process at the growing ends of the long bones is essentially an abnormal vascularisation of the epiphyseal cartilage, with a resulting aberrant deposit of calcium throughout the so-called "osteoid" tissue. It is found that in a florid case of active rickets the clear line representing the epiphyseal cartilage is several times the normal width, and that throughout this cartilage there are numerous fine irregular striæ. The metaphysis, instead of showing a regular line of increased density immediately adjacent to the epiphyseal cartilage, has an irregular flocculent appearance; and, as the changes are most marked towards the centre of the bone, there is frequently a degree of "cupping." This latter deformity is usually most marked at the distal end of the ulna. In cases where treatment has been delayed there may be bowing of the long bones, but this is of little interest here as being less amenable to medical treatment.

Fig. 1.

Case 1.—Rickets in a child aged 5.

A very large number of studies have been made of the process of healing under various forms of antirachitic treatment, and it is not intended here to go into this in detail. It will suffice to point out that within 14 days of the commencement of treatment by irradiated milk there was a perfectly definite clearing of the epiphyseal cartilage, and that the metaphysis showed an increase in regularity, with early signs of the formation of the band of sclerosis already referred to as being a constant feature of healthy bones. The illustrations given show the improvement after one month's treatment (Figs. 3–8). The diminution in the width of the epiphyseal cartilage will also be noticed.

The active and previously untreated cases are the most readily followed in their improvement. Considerable difficulty arises in forming a comparions with any other form of antirachitic treatment, since it is desirable to compare only cases of similar age, severity of disease, and previous treatment. In can, however, be stated that the rate of improvement under irradiated milk is, from a radiological point of view at least, greater over any given period of time than that observed under other forms of antirachitic treatment. Moreover, as is mentioned elsewhere, there was marked radiological evidence of improvement in several cases which had been found abnormally resistant to modern antirachitic measures.

Fig. 2.

Radiogram of knee-joint in healthy child aged 5. Note clear epiphyseal line, with regular dense metaphysis.

Brief mention may be made of the physical properties of the milk. Earlier observers found that after irradiation, milk and other foodstuffs not only acquired therapeutic power but also possessed a degree of photo-activity. They further found, however, that these two properties were not necessarily concomitant, for if the irradiation was done in an oxygen-free atmosphere there was no loss in the therapeutic value, but, in the case of oils at least, no photo-activity was developed. The greater part of the work on this subject has been done on the continent, and it may be pointed out that the photo-activity is more probably due to some chemical action than to the actual emission of radiation. Experiments were done with the milk here used and no evidence of photo-activity was found, this bearing out from isolated observations the previous experiences of others.

Illustrative Cases.

The records of two cases may be given in some detail; these sufficiently indicate the details of dietary and other treatment.

Case 1.—A photograph is given (Fig. 1) of one of the most severe cases—the patient being a child, aged 5, treated in the wards of one of us in the Royal Infirmary. He was unable to stand or walk; he had never walked; he had not learned to speak, and he had never been known to smile. On four different occasions he had been treated for a lengthy period in the Royal Hospital for Sick Children for rickets. The general condition is well revealed by the photograph, which, however, gives an inadequate idea of the severity of the curvatures of the limbs. For the first few weeks the treatment was restricted to rest in bed in the ward, and the following dietary:—

(*a*) For first three days: Ate little. Diet selected from 1 pint of milk, of which 1 part in 6 was irradiated. Rusks (wholemeal bread), half an egg, orange-juice, and a little porridge.

(*b*) Four subsequent days: 36 oz. milk of Certified standard, of which one-third was irradiated; otherwise as above.

(*c*) 2½ weeks: 36 oz. of milk (half of it irradiated); otherwise as above.

(*d*) After (*c*): 36 oz. of milk continued as in (*c*). A little meat added in form of fish, chicken, tripe, also potato, and occasionally turnip and apple.

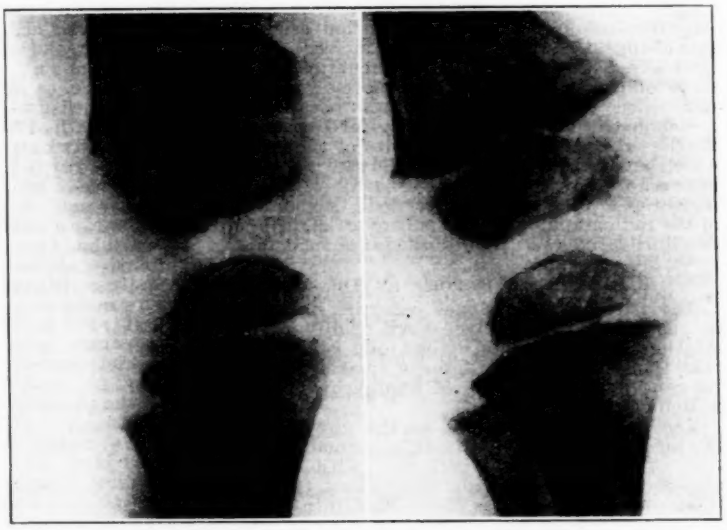
No medicinal or other measures were employed, with the exception of an occasional mild laxative medicine (syrup of figs) to counteract the slightly constipating tendency of the dietary. For the first few days little food was taken owing to gastric disorder. The extreme muscular feebleness of the child precluded the necessity of any measures being required to ensure rest to the limbs. The radiographic appearances were those of advanced florid rickets.

Within a fortnight the improvement in the general condition of the child was striking, this being associated with a notable improvement in the X ray appearances of the limbs. At the end of six weeks, when the radiographic appearances of the joints were almost normal, additional measures were employed in the form of splints and massage to keep the child at rest and favour correction of the pronounced curvature of the limbs. Complete elimination of the severe curvature was not effected, and it is probable, in view of the unfavourable environment of the child, that this will not be obtained without surgical assistance at a later date. A remarkable feature of the case was the coincident improvement which took place in the mental development of the child. From being unable or unwilling to speak and being generally inanimate, the power of speech, an interest in his surroundings, and all the mental traits of the average child manifested themselves. This improvement in the psychological state did not noticeably develop until after three weeks' treatment.

CASE 2.—This is recorded as one of four cases selected as specially suitable for the investigation. He had been an in-patient in the Victoria Home for five months for the treatment of rickets, but had proved unusually refractory to treatment, the general condition of the child and the radiographic appearances of the joints being still unsatisfactory, and the lesion still active. Besides a careful antirachitic dietary, which included 18 oz. of high-grade milk and orange-juice daily, a course of various special antirachitic remedies had been given. This included irradiated ergosterol (95 tablets), ostelin (8 oz.), exposure to ultra-violet rays, &c. All medicinal and other special measures of treatment were stopped, the dietary in use was continued with the exception that 6 oz. of irradiated milk of Certified standard replaced 6 oz. of the Grade A (tuberculin tested) milk ordinarily supplied to the home.

Under this regimen an improvement in the clinical condition was striking and rapid. The favourable influence of the treatment is indicated in Figs. 7 and 8. Fig. 7 illustrates the condition of the wrists after five months' indoor treatment, before the administration of the irradiated milk was begun. Fig. 8 depicts the same joint after four weeks' treatment with irradiated milk. The radiographic appearances were then practically normal, the clinical condition having proportionately improved.

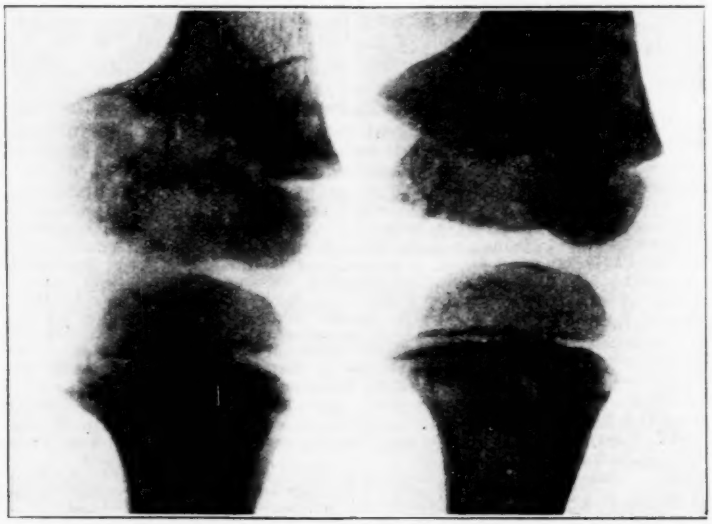
FIG. 5. FIG. 6.



Case of rickets before and after one month's treatment with irradiated milk. The change from the very indefinite and irregular metaphysis to the normal regular dense line is well shown.

It is noteworthy that this recovery (and similarly in the other three cases) was effected merely by substituting 12 pints of irradiated milk for 12 pints of milk of similar quality unirradiated, all medicinal and other special therapeutic measures being withheld. It is important to note that the cost of the special irradiated medicinal products (excluding ultra-violet rays) administered in the previous five months—with very restricted success—would be, at retail rates, approximately 18*s*. As our experience leads us to believe that there could be no justification for the price of irradiated milk exceeding that of unirradiated by more than 1*d*. per pint, the total cost of the special treatment—and of the recovery—over the four weeks' period was 1*s*. On the economic side, therefore, the advantage lies markedly on the side of treatment by irradiated milk.

FIG. 3. FIG. 4.



Case of florid rickets. Note the wide epiphyseal lines with irregular striation throughout the cartilage. There is also typical "flaring" of the metaphysis with irregularity of the edge. Fig. 4 shows the condition of the same bones after one month's treatment with irradiated milk. Note the rapid approximation to the appearance of a normal joint.

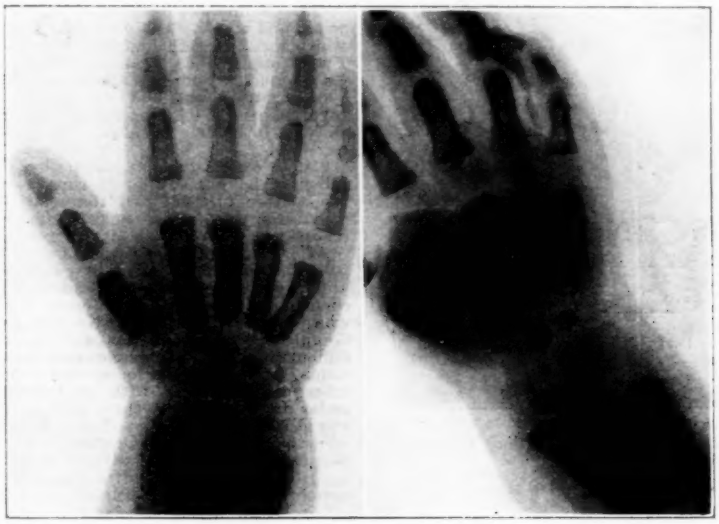
A Word of Caution.

A word of caution is necessary about the use of irradiated milk. It is essential, in view of its profound influence on the growing bones, to keep in view the possibility of overstimulation leading to premature ossification. This danger can be easily avoided. With our present limited knowledge it is, in our opinion, essential that irradiated

milk should not be considered a complete substitute for good fresh milk. In a series of adult subjects to whom we administered the milk to the extent of 3 pints daily over a period of six weeks no untoward symptom of any kind was observed. In view, however, of various experimental results that have been recorded in animals from the use of highly irradiated products, in the form of abnormal calcification in the cardiovascular and renal systems, the milk should be used with care and discrimination. It may be accepted, beyond any possibility of doubt, that the recent discovery of the value of properly irradiated milk is one of very far-reaching importance alike to the practitioner, the physiologist, biologist, and the student of nutrition generally. The question of the standard of irradiation, and the possibilities of its application in conditions other than rickets, may be briefly referred to.

FIG. 7.

FIG. 8.



Wrist of child aged 3. After five months' hospital treatment, rachitic changes are still present in Fig. 7. Note "cupping" of the ulna. In Fig. 8, after one month's treatment with irradiated milk, no rachitic changes are detectable.

Standards.

In this country irradiated milk can only be sold under license from the patent holders. Under this arrangement the licensees agree that "their irradiated milk shall not contain less than two (2) ostelin (vitamin D) units per gramme of butter-fat as determined by the pH drop test under conditions laid down in the papers by Jephcott and Bacharhach (*Biochem. Jour.*, 1926, xx., 1351, and 1928, xxii., 60), or alternatively eight (8) Pharmaceutical Society's units per gramme of butter-fat as determined by the line test employed by the Pharmaceutical Society." With fuller knowledge time may show that these tests may require modification. We have at present no assurance that the butter-fat supplies a complete and reliable guide. The material point for the profession and the public at the present time, however, is the fact that under the existing standards milk can be successfully irradiated so as to impart to it a very valuable additional therapeutic property in the prophylaxis and cure of rickets. A further question that naturally arises is the possibility of irradiated milk proving of value in conditions other than rickets. While no authoritative statements can be made on this subject it may be useful to indicate some directions in which evidence may reasonably be looked for.

Irradiated Milk in the Treatment of Other Disorders.

In the past few months a series of observations have been made on the feeding of children in the Craiglockhart Parochial Hospital, Edinburgh, under the direction of Dr. R. W. Dawson, resident physician. The cases observed showed the very severe malnutrition commonly seen in patients in these institutions. The results, more especially in the case of children over one year old, have been very gratifying, the gain in weight and improvement in the general condition of the children having been very satisfactory. The possible value of irradiated milk in the treatment of various disorders of pregnancy and lactation, associated with derangements in calcium metabolism, has been referred to in medical literature, but adequate data on the subject are still lacking. Through the kindness of Mr. F. E. Jardine, surgeon in charge of the special sanatorium under Edinburgh Corporation for the treatment of tuberculosis and other disorders of an orthopædic classification, we have had an opportunity of testing the effects of irradiated milk in a series of four cases of advanced tuberculous disease of the knee-joint of three to five years' duration. The favourable results obtained have been very striking. These amply justify the recommendation that a thorough and prolonged investigation should be made in this direction. To this end it is, in our opinion, desirable that the whole subject should be investigated under the ægis of a specially appointed scientific body, whose opinions and recommendations, on scientific and clinical questions, would commend themselves to the profession.

Conclusions.

1. The claims of numerous German writers concerning the value of irradiated milk in the prevention and cure of rickets are amply confirmed. 2. Irradiated milk should not be regarded as a complete substitute for good fresh untreated milk. 3. In rickets, between 2 and 5 years of age, excellent results have followed its use when the milk has been used in strengths varying from 1 part irradiated to 2 parts unirradiated, up to equal parts of the two preparations. 4. The cure of the disease is established more quickly, effectively, and economically by the use of irradiated milk than by various irradiated commercial preparations. 5. There are indications that irradiated milk may prove of outstanding value in the treatment of certain disorders other than rickets—notably disorders incidental to pregnancy and lactation, the climacteric, malnutrition, injuries and surgical diseases of bone, and certain forms of tuberculosis. 6. There is need for the establishment in this country of a scientific body to initiate and direct the work, both on its strictly scientific and clinical sides, called for by these new facts about nutrition, and the influence of ultra-violet rays upon it.

We have pleasure in expressing our indebtedness to Dr. Woodburn Morison, of the Radiological Department of the Royal Infirmary, Edinburgh, for his cordial coöperation and assistance; also to the British Hanovia Quartz Lamp Co. (Scholl apparatus), and Food Irradiation Co. (Scheidt apparatus), for their courtesy in putting apparatus at our disposal for the investigation.

THE board of management of Birmingham General Hospital have accepted the offer of an anonymous donor to establish a studentship in diabetic research of the value of £250 a year. The studentship will be held in connexion with the hospital's diabetic clinic.

Clinical and Laboratory Notes.

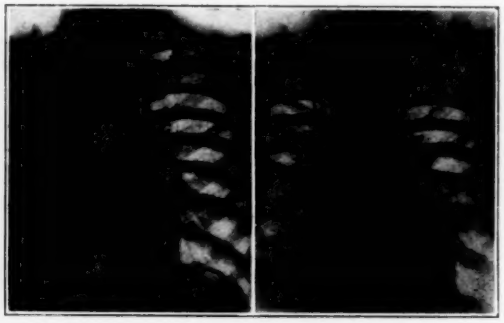
A CASE OF ADENOCARCINOMA OF BRONCHUS.

By L. S. T. Burrell, M.D., F.R.C.P. Lond.,
PHYSICIAN TO THE ROYAL FREE HOSPITAL AND TO BROMPTON HOSPITAL FOR CONSUMPTION.

THE patient, a man of 29, complained of pain on the right side of the chest, dyspnœa, cough, and sputum which was often blood-stained.

He dated the symptoms from an accident in November, 1928, when he broke a tooth, and it was thought that he might have a piece of broken tooth in a bronchus. On examination in April, 1929, no breath sounds were heard on the right side of the chest which was found to be completely dull, and the heart was slightly displaced towards the right side. A diagnosis of collapse was made, and this was confirmed by radiography (Fig. 1); but as no foreign body was seen the presence of a tumour was suspected. In May the patient was examined through a bronchoscope by Mr. V. E. Negus at King's College Hospital, and a red, rounded, smooth mass was seen projecting from the posterior wall of the right bronchus just above the orifice of the upper lobe bronchus into which it was sucked during inspiration. A lot of fœtid pus was aspirated, and the tubes cleaned in order to make subsequent operation more satisfactory.

FIG. 1. FIG. 2.



Collapse of right lung. Heart slightly displaced to the right.

The right lung has now re-expanded and the heart has returned to its normal position.

A few days later Mr. Negus again passed a bronchoscope, and painted the growth with cocaine and adrenalin. It now appeared as a mere bulge from the bronchial wall, but had a definite pedicle, and he was able to remove it with biting forceps, leaving the base as a small excoriated area. It was then possible to see clearly down the right lower lobe bronchus. The tumour looked like a soft fibroma, but on section it proved to be adenocarcinoma.

Radiographic examination ten days after the operation showed partial re-expansion of the right lung. The note on percussion was still impaired on the right side, but it was not dull and air could be heard entering the lung. The patient left hospital much improved and had very little dyspnœa. Fig. 2 shows the condition at the end of July, 1929, ten weeks after the operation. The patient was then free from all symptoms and felt perfectly well.

This case is similar to the one I published in THE LANCET (1927, ii., 1180), but in that patient the tumour was a simple fibroma, and when I last heard from her in May, 1929, she was quite well and had had no further symptoms since the tumour was removed. In the present case it is probable that the carcinoma will spread, although it is possible that the whole tumour has been removed.

The patient was referred to me by Dr. Malcolm Hutton, of Stamford, and I am indebted to him for permission to publish this paper, and to Dr. Ulysses Williams for the skiagrams.

A CASE OF CICATRICIAL STENOSIS OF THE ŒSOPHAGUS.

By Kenneth Heritage, M.B., F.R.C.S. Eng.,
LATE RESIDENT SURGICAL OFFICER, ANCOATS HOSPITAL; RESIDENT MEDICAL OFFICER, MILLER HOSPITAL.

THE following case illustrates the importance of œsophagoscopy as a means of diagnosis in œsophageal obstruction.

A married woman, aged 42, first attended Ancoats Hospital, Manchester, on March 9th, 1929, with a history of six days' complete œsophageal obstruction; she was unable to retain even small quantities of water. For two years previously she had suffered from progressive difficulty in swallowing—solids, meat, &c., having to be minced for her. Being of a rather nervous disposition this had been treated for a time by her doctor as a case of hysteria.

On examination I found an anæmic wasted woman, very weak, and scarcely able to walk. Her weight was 6 st. 2 lb., which was 2 st. less than it had been six months previously. Fluids and solids were returned unchanged from the œsophagus. Routine screening of the chest excluded thoracic neoplasm and aneurysm, and a barium meal revealed complete œsophageal obstruction at the level of the eighth thoracic vertebra. The Wassermann reaction was negative.

Before œsophagoscopy the patient had denied the possibility of having swallowed corrosives, but on going into the matter further with the relatives afterwards it was discovered that, at the age of 3, she had swallowed "lye" (caustic soda) in mistake for ginger-beer.

After combating the patient's dehydrated condition with subcutaneous and rectal saline I passed an œsophagoscope under general anæsthesia, and found, 20 cm. from the edentulous gums, a hard fibrous lip surmounting a pale white annular stricture. No foreign body was present. Complete obstruction was due to stenosis alone. With difficulty a filiform bougie was introduced under direct vision, and left in situ for several hours. The stricture was subsequently dilated with graduated gum-elastic bougies under direct vision, at three sittings under anæsthesia, and was shown to be solitary. Later, the patient having become accustomed to instrumentation, it was found preferable to pass the œsophagoscope without anæsthesia, by the method described by Abel,[1] and this has proved a good method of examination and treatment of this condition. She is now able to swallow anything and is rapidly gaining weight in consequence.

The case is unusual in view of the long period (37 years) between swallowing caustic in infancy—an event forgotten by the patient—and the onset of definite dysphagia two years ago. The complete nature of the obstruction when first seen is also noteworthy.

Treatment by gradual dilatation under direct vision through an œsophagoscope passed under local, or without, anæsthesia, forms in my opinion the ideal method of maintaining patency in the case of simple œsophageal stricture. "Blind bouginage" can only be condemned by the dictum of Trousseau, that "sooner or later all cases of stricture of the œsophagus die of the bougie." Other methods, such as those of Plummer and Tucker, demand the presence of a gastrostomy over a prolonged period in a patient who is able to swallow the thread guide.

I am indebted to Mr. F. Holt Diggle, from whose clinic this case is reported.

CHRONIC PARASITIC FUNICULITIS IN EGYPT.

By Dr. M. F. Sorour,
ASSISTANT PROFESSOR OF PATHOLOGY, FACULTY OF MEDICINE, CAIRO.

TEN years' experience in examining pathological material sent from Government hospitals all over Egypt has shown that chronic nodular masses, of varying size, are not uncommon lesions in the spermatic cords of the Egyptian fellaheen (peasants).

[1] Abel, A. L.: Œsophageal Obstruction, London, 1929, p. 39.
[2] Sewell, Lindley: THE LANCET, 1928, i., 1008.

These nodules vary in size from a hazel-nut to a pigeon's egg, and are, as a rule, painless, or only slightly tender. Two varieties of this condition have been met with, due respectively to two different parasites—namely, filaria and bilharzia.

(1) *Chronic Filarial Funiculitis.*—For many years I had received spermatic cord nodules, which, in sections, showed: Chronic fibrosis, with very heavy eosinophil cell infiltration, enclosing thickened walled blood-vessels, whose lumens were narrowed, or completely obliterated, by organised thrombosis. I named these lesions "chronic eosinophilic funiculitis"; and although no bilharzia, ova, or worms had been found in them, I suspected a worm infection. In 1927 I received a spermatic cord nodule from the Government hospital at Zagazig, which, on section, disclosed, besides the histological changes above described, a large lymphatic vessel cut very obliquely, show layers of endothelial proliferation, containing many multinucleated cells. In its lumen was an intact filaria worm, cut in many places and directions. In the very oblique, almost longitudinal, sections of the worm were ova and embryos.

The worm was surrounded by a heavy cellular mass of endothelial cells, many polynucleated cells, and eosinophil cells. At one end of the obliquely cut lymphatic were filaria embryos lying intermixed with the cellular elements surrounding the worm. In serial sections the same lymph vessel in its part beyond the worm was occupied by similar cellular contents much intermingled with filaria embryos apparently on their way to the blood stream. The long-standing suspicion thus confirmed, I went back to the old collected and preserved spermatic cord eosinophilic nodules, and on serial sectioning found, in each case, direct evidence of filarial infection, either in the form of intact filaria worm; or of degenerated worm inside a fibrosed lymph vessel; or of lymph vessels obliterated by endothelial and eosinophil cells with filaria embryos amongst them; or of calcified remains of the worm. These findings established, for the first time, the existence of *chronic filarial funiculitis* in Egypt. I think that the acute endemic funiculitis which occurs in Egypt and frequently goes on to suppuration is engrafted on a chronic filarial lesion. The analogy is with the acute febrile inflammatory attacks which occur repeatedly in the course of chronic elephantiasis of leg, scrotum, and breast.

(2) *Bilharzial Funiculitis.*—This, the second type of parasitic funiculitis met with in Egypt, is due to

1

Lymphatic vessel containing filaria worms, cut in different situations and directions, and surrounded by a cellular mass.

2

Filaria worms in lymphatics from another case.

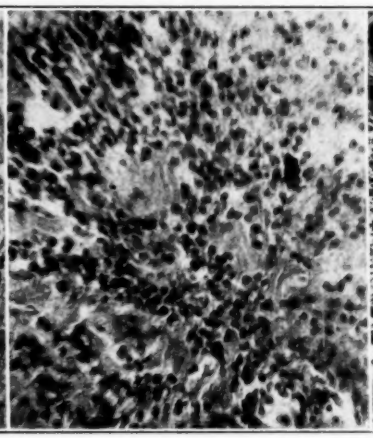
3

High magnification of part of filaria worm, showing embryos inside the mother worm.

4

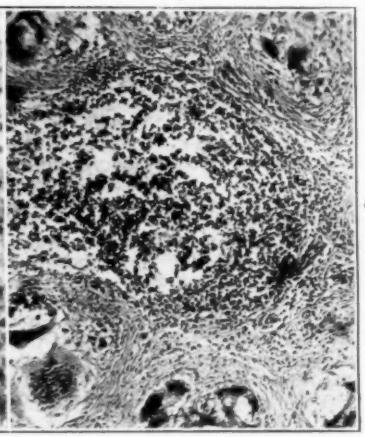
Remains of degenerated worm inside fibrosed, obliterated lymph vessel, in a chronic case.

5



Heavy eosinophil cell infiltration in tissue of a nodule from an early case of filarial funiculitis.

6



Bilharzial funiculitis showing heavy eosinophil cell infiltration, and many bilharziomata with ova and giant cells.

lateral spined, or to terminal spined, or to both kinds of ova lying in the tissues of the spermatic cord. The lesions are characterised by round, oval, or cord-like hard fibrous tumours, easily shelled out from the surrounding tissue. Histologically they consist of fibrous tissue densely infiltrated with eosinophil cells, and with many bilharziomata embedded in the mass. The bilharziomata are small, tubercle-like structures, consisting, when recent, of one or two central bilharzia ova, surrounded immediately by huge giant cells, and peripherally by layers of large endothelioid cells. In older bilharzioma the outer endothelioid layers are replaced by hyaline fibrous tissue, which may increase concentrically until the whole is a mass of whorls of hyaline fibrous tissue, with the central ova calcified, or, the ova having been devoured by the giant cells, only a chitinous capsule or spine remains to tell the story. In the older lesions the eosinophil cells become few or vanish from the fibrous tissue surrounding the bilharziomata, with the death of the ova which invited and maintained their presence.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN MANCHESTER.

(*Continued from p. 665.*)

SECTION OF PATHOLOGY AND BACTERIOLOGY.

TUMOURS OF THE INTESTINE.

WITH Prof. J. S. DUNN (Manchester) in the chair, a discussion on the Relation of Malignant Disease to Benign Tumours of the Alimentary Tract was opened by Prof. MATTHEW STEWART (Leeds). He drew attention to the frequency of the casual finding of such benign tumours post mortem, many of them of little importance per se, but a few being attended with serious complications. Such tumours he classified into (1) connective tissue, (2) epithelial. The first group consisted of lipomata and leiomyomata. The former were rare and of small size; the variety occurring in the stomach was submucous while those of the intestine were usually subserous. Leiomyomata were more common and were flat and button-like. These latter occasionally became sarcomatous, but whether the tumours were innocent at first with subsequent malignant degeneration or whether they were sarcomatous from the outset was difficult to determine. Myosarcoma was more frequent in the stomach than in the intestine.

The epithelial tumours, said Prof. Stewart, were of much greater importance. They were usually adenomatous with a tendency to become polypoid and might attain a very large size. Their polypoid form was believed to be due to the mechanical action of the gut, and the pedicle was often quite definitely not composed of tumour tissue. He suggested that the submucosal thickening which occurred in relation to these tumours was mechanical rather than inflammatory. Other simple epithelial tumours described were adenomyomata and pancreatic heterotopia. There is no evidence, said the speaker, that either of these is specially liable to malignant change. With regard to adenomatous polypi, Dukes had found such tumours in 25 out of 33 consecutive surgical cases of carcinoma of the rectum. In the case of the stomach there was also a growing tendency to associate malignant with benign tumours. Analysing 11,000 autopsies at Leeds Royal Infirmary, Prof. Stewart found 47 cases of polypi of the stomach and about a quarter of these were associated with carcinoma. The total number of cases of carcinoma of the stomach, however, in these post-mortems was 263, so that only 4·9 per cent. were associated with polypi. Although polypi must be accepted as precursors of malignant disease of the stomach in a small percentage of cases, the association was much more intimate in the large intestine.

The speaker next reviewed the criteria of early malignancy in gastro-intestinal polypi. Invasion of the muscularis mucosæ he considered the most important single phenomenon. In earlier cases where there was only irregularity and de-differentiation of cells the diagnosis was more difficult, but such cases must be regarded with grave suspicion. Carcinoid tumours occupied an intermediate position between the simple and malignant. They were locally infiltrative, but never developed the characters of frank carcinoma. A review of the experimental results of many workers revealed very little of positive value concerning the point under discussion. Ishibashi and Otani (1921) had produced papillary adenomas in the stomach of animals by means of submucous injections of tar. Leitch had obtained negative results by injection of tar per rectum. Menetrier had succeeded in producing squamous carcinoma in the stomach of a rat by administration of tar, while Schabad had obtained negative results in mice with similar experiments.

Prof. ARCHIBALD LEITCH (London) described four cases of benign tumour of the small intestine, but on account of the extreme infrequency of malignant tumours in this situation he considered the relationship between innocent and malignant tumours here was hardly worth discussing. In the case of the large intestine the number of museum specimens kept to show benign and malignant tumours occurring together tended to produce a wrong conception of the importance of benign tumours as precursors of cancer. In experimental work and in the study of cancer in various parts of the body it had been shown that simple tumour formation occurred in numerous foci with only one or a few of these becoming malignant. He would like to believe that such a condition occurred in the intestine, but observation on a large number of cases of carcinoma of the colon led him to think that such a process was quite uncommon. He doubted the importance of the extremely small papillomata so often described, and he believed that such tumours should be neglected in an observation of this kind. Lack of controls greatly reduced the value of many observations. When, however, there were definite adenomata in the intestine there was a great tendency for these to become malignant. He was unable, however, to support Dukes's theory of retrogression. In his experimental work Prof. Leitch had used tar and the products of putrefaction with negative results. His general conclusion was that the case had been overstated and that in reality benign tumours were of little importance as precursors of cancer in the large intestine, although when adenomata do occur there is a great tendency for them to become malignant.

Dr. CUTHBERT DUKES (London) described the last 75 cases of cancer of the colon that he had examined. He classified these into (*a*) those in which malignant growth had infiltrated the submucous coat but had not reached the muscle coat; (*b*) those in which the muscle coat was invaded but without spread by direct continuity into the perirectal tissues; (*c*) in which spread had occurred into the perirectal tissues. In group (*a*) was only one tumour and this was associated with papillomata. Group (*b*) consisted of 18 tumours, half of them being associated with papillomata which were only present in less than a third of the 56 cases in group (*c*). Dr. Dukes concluded that papillomata are more common in early than in late cases of cancer. The speaker suggested that the rarity of occurrence of papillomata in group (*c*) could only be explained by the supposition that some sort of immunity developed as a result of cancerous invasion, and this led to a retrogression of the epithelial proliferations in the immediate neighbourhood. The frequency of papillomata in early cancer lent support to the view that adenomatous polypi preceded cancer of the rectum. Indeed in cases of familial polyposis of the intestine this almost invariably occurs. The diagnosis of papillomata was made only when these were visible at first glance and when several were present. Cases in group (*a*) were characterised by epithelial

proliferations heaped up above the surface of the surrounding mucous membrane, whereas in group (*c*) the cases had excavated ulcers with raised margins. Group (*b*) cases were intermediate between these two. These were not different types of growth but different stages in the development of malignant growth. In the early stages epithelial proliferations projected into the lumen of the bowel and the tumour had the structure of an adenoma or villous papilloma. The onset of malignancy was marked by invasion of the submucosa and this was followed later by ulceration. If the tumour was removed before there was evidence of invasion it would be classified as an adenoma, if after invasion as a carcinoma. Thus, in the precancerous or pre-invasive period the epithelial proliferations in carcinoma and adenoma were indistinguishable. It was not possible to express statistically the frequency with which cancer developed in a pre-existing papilloma compared with its origin from a flat region of the mucous membrane, but malignant degeneration of an adenomatous polyp was met with commonly, and the earliest cancers in museum collections were usually of this type. Dr. Dukes concluded that adenomata and carcinomata in the colon were often related phases in the incidence of malignant disease.

Dr. WILLIAM SUSMAN (Manchester) analysed and classified simple and malignant tumours of the alimentary canal found in 883 autopsies at Manchester Royal Infirmary. In 38 cases there were polypi of colon, associated in every case with hyperplasia of the mucous membrane. They were twice as common in males as in females and were found most frequently between the ages of 40 and 60. In some cases polypi were limited to one or other segment of the colon without there being any predominant distribution. In other cases polypi were distributed throughout the large intestine. Single polypi were present in nearly half the cases. In 17 of these 38 patients there was associated cancer; in 10 of them this was situated in the colon, 2 in the stomach, 2 in the œsophagus, and 3 elsewhere. The speaker concluded that polypi were definitely associated with malignant disease of the colon, and that the polypi underwent changes analogous to those observed in the skin of the mouse during tar treatment. Solitary polypi might and multiple polypi were very likely to be potentially malignant.

Dr. J. S. YOUNG (Leeds) pointed out that skatol and indol injected subcutaneously had been found to produce simple hyperplasia; since these substances were increased in constipation he suggested a possible relationship to tumour development. Dr. Young had also shown that bile-salts have a marked action in producing epithelial hyperplasia and this opened up another field for investigation.

Prof. STEWART summing up said that the speakers were agreed that papillomata of the colon were sinister manifestations and frequently developed into malignant tumours. There was some difference of opinion as to the relative importance of benign tumours in cancers of the intestine taken as a whole and it seemed that much depended upon the criteria of the diagnosis of polypi.

Dr. D. F. CAPPELL (Glasgow) read a paper on the

Reticulo-endothelial System as Studied by Intravitam Staining.

This system, he said, consisted of cells which were widely scattered throughout the body and possessed certain physiological properties in common. They were concerned in ingestion and storage of particulate matter and substances in solution as well as the phagocytosis of micro-organisms. They became prominent in certain pathological conditions, especially in cases of excessive blood destruction, when excess iron was stored, and in cases of perverted lipoid metabolism. The distribution of reticulo-endothelial cells might be determined by the injection into animals of various dye substances which were taken up by the cells. Particulate matter such as india ink was taken up rapidly while dyes in solution, such as trypan-blue, required to be present in the circulation for some hours before staining was intense. The distribution was described as (1) cells lining the vascular channels of the liver, spleen, bone-marrow, and lymph glands; (2) reticulum cells of the spleen, lymph glands, and bone-marrow; (3) histiocytes occurring in all connective tissue except that of the central nervous system; (4) a few mononuclear cells in the circulating blood. Vital staining might be applied to the study of cells occurring in inflammatory processes. Using a dye such as trypan-blue it was not possible in this way to distinguish histiocytes originally present in the tissues from macrophages which had entered the inflammatory focus from elsewhere, but by employing a blue vital stain before inducing an inflammatory process with a subsequent red stain when the lesion had developed it was possible to distinguish the original reticulo-endothelial cells from those which had subsequently developed the characters of phagocytes. It was possible also to recognise in an inflammatory lesion monocytes which were derived from the blood stream by previous injection of india ink, since these cells took up the black particulate matter. The method of intravitam staining could also be used, said Dr. Cappell, in the study of so-called reticulo-endothelial blockade. He believed that it was impossible to produce such a condition by injection and splenectomy, so great was the cell regeneration.

Prof. LORRAIN SMITH (Edinburgh) pointed out that Dr. Cappell had described the occurrence in inflammatory tissue of unstained macrophages even after injection of vital dye. He wished to know where these came from.—Dr. CAPPELL in reply stated that certain cells of the reticulo-endothelial system failed to stain and these he regarded as immature but potential macrophages.

Prof. J. S. DUNN asked whether Dr. Cappell could state what was the relationship between monocytes in the blood stream to the other varieties of cells described, and whether the small mononuclear could be distinguished from lymphocytes.—Dr. CAPPELL replied that the small mononuclear differed somewhat in mitochondrial structure, although he believed both types of cell to be capable of further development if they left the blood stream and entered inflammatory tissue.

SECTION OF ORTHOPÆDICS.

OPERATIVE TREATMENT IN TUBERCULOSIS OF THE LARGER JOINTS.

Mr. G. R. GIRDLESTONE (Oxford), who opened the discussion, explained that the field of debate had been restricted to the use of operations in the actual course of the treatment of tuberculosis, so as to exclude the wide field covered by operations for the late complications and for diagnosis. The latter were a necessity in certain early cases, where the diagnosis could be made in no other way; but even after an arthropsy had been made a few tubercle bacilli might cause great disturbance of a joint though hard to find in a piece of synovial membrane. Prof. Dreyer had suggested that the bacilli might at times be in a non-acid-fast condition, and difficult on this account to observe. Mr. Girdlestone quoted a letter from Prof. Osgood of Harvard in which he referred to the risks of starting sinus formation by the exploration of a joint.

The aims of treatment were, he said, twofold: (1) to save the life of the patient; (2) to restore a safe and useful limb, suitable for the ordinary stresses of life. The dangers to life were from continuance of the tuberculosis, whether in the joint itself, or in deep lymphatic glands, whose involvement was apt to be forgotten, though probably of the first importance. It was from the lymphatic focus that the joint was first infected and that secondary infections occurred, and this focus was easy to heal in children by general hygienic measures, whereas it was rare to get it healed in adults. On the other hand, the joints of

children healed with extreme difficulty, while radical operation quickly healed the joints of adults, but left them at the mercy of the lymphatic focus, so that they usually died from various secondary foci in the late stages of their ailment. In children the dangerous period occurred soon after the diagnosis was made in the early days of hospital treatment. There was, he went on, a fallacy in regarding quiescence of a tuberculous joint as cure, for even when the lesion gave no sign of activity with Thomas's tests, it might yet light up directly it was subjected to the ordinary wear and tear of life. Such a joint might do well enough for the well-to-do living a sheltered life, but it was useless to a working man. In the majority of cases treated for prolonged periods in an open-air hospital, it was only this quiescence that was obtained in the larger joints, more particularly the hip; the study of remote as opposed to immediate hospital results during the last few years had made this clear. Operative treatment was therefore advisable for quiescent joints which did not regain the full normal range of movement and did not keep it with unrestricted use; small degrees of movement simply invited strain and resultant flare-up.

Speaking of the operations suitable for various joints, Mr. Girdlestone remarked that the type of excision and radical operation which gave useful function in the upper limb seldom provided the stability essential for the lower limb, where arthrodesis was usually the operation of choice. For the knee he advised immediate arthodesis in adults and in children with destruction of cartilage demonstrable by X rays, or whose knees remained persistently inflamed after thorough conservative treatment; but he preferred to delay the operation in them till the age of 12 or 14 years. The hip presented a problem of its own on account of the varied strains to which it was subject and because the shape of the joint made intra-articular arthrodesis difficult to achieve. In the adult he advised combining the intra- with the extra-articular operation, as a mere graft was likely to break with strain. In a child with a strong fibrous ankylosis and upward subluxation, the extra-articular graft of Hibbs might be sufficient; but if much granulation tissue filled the joint, the graft was apt to be absorbed. He expressed approval of the method suggested by Wilson of Boston in bringing down a large osteo-periosteal flap from the ilium, which had a much better blood-supply than the femoral graft.

Mr. Girdlestone concluded by showing lantern-slides illustrating various types of operations with their results, and the healing of chronic sinuses by the method of wide, lateral drainage with suture of the skin to the periosteum.

Discussion.

Sir WILLIAM WHEELER (Dublin) disagreed with Mr. Girdlestone as to the cause of death which he thought depended on the size of the joint rather than on the condition of any deep lymphatic focus. Few cases of tuberculosis in the finger died, whereas the mortality from hip and sacroiliac disease was high; moreover, some of the worst cases were cured rapidly, when the joint focus was removed by amputation. Conversely, cases diagnosed as rheumatism and treated by heavy massage might quickly absorb bacilli from the joint and die of meningitis. The facilities available to the patient must, he said, be borne in mind in planning treatment; each joint presented a separate problem. He agreed that the surgeon should aim at bony ankylosis in any tuberculous joint in which the full range could not be obtained. Diagnosis was difficult and he suggested that the metaphyseal foci described by Stiles might result from a mixed pyogenic and tuberculous infection. There were fashions in treatment and he would like speakers to discuss the place of arthroplasty in late cases of tuberculosis of the knee, and of early osteotomy to ensure rest in active tuberculosis of the hip. He demonstrated such a result in his lantern-slides of X rays before and after joint operations. In reference to one of them, he pointed out the need for wide resection of bone in excising a tuberculous wrist.

Mr. ALEXANDER MITCHELL (Aberdeen) associated himself with previous speakers in finding diagnosis difficult; but without it no rational treatment could be planned. The type of ankylosis ordinarily obtained was unstable, but he had seen admirable results in Hibbs's cases at the White Plains Hospital, New York, following the "extra-articular fusion" operation. He did not think there was much shock associated with this operation. He referred to the successive fashions in the treatment of these cases: (1) operative (frequent excisions); (2) fixation by splinting for years; (3) movement by Rollier's system; (4) and now arthrodesis combined with open-air treatment. He would himself divide tuberculous joints into four types requiring different methods: (1) the synovial type with no X ray evidence, where arthropsy presented the only means of making a certain diagnosis; (2) the epiphyseal lesion well shown in the X ray, but scarcely involving the joint itself, likely to heal well and not requiring operation; (3) the case with pain and spasm well marked and with obvious involvement of the articular surfaces; and (4) the case with extensive bone destruction. The two latter types required resection or arthrodesis. In elderly persons the joint should simply be amputated.

Miss M. FORRESTER-BROWN (Bath) referred to the technical difficulty, in extra-articular arthrodesis of the hip, of turning the graft upside down, as advised by Hibbs; she had found it better merely to slide the graft upward and fix it in a bed, prepared by thoroughly rawing the neck of the femur, by means of catgut sutures through the muscles over it. This safeguarded the blood-supply. She also referred to the difficulty of knowing at what stage a patient with a quiescent joint would tolerate operative interference.

Mr. H. A. T. FAIRBANK (London) advised radical removal of the disease from the adult knee, using a tourniquet which he thought reduced the risks of generalising the infection. He had found the sulphur method of value for some of the secondarily infected joints. He did not believe in grafting for sacroiliac disease.

Mr. WHITCHURCH HOWELL (London) related some very late results of treatment which he had met with—e.g., a case with 9 inches of shortening of the lower limb after excision of the knee in childhood; and a woman who had survived to the age of 75 years in spite of a sinus discharging since the age of 5 years.

Mr. A. W. ADAMS (Bristol) asked for figures of the frequency of generalised dissemination after operations on tuberculous joints, and also whether arthritis should not be anticipated by removal of epiphyseal foci.

Mr. W. ROWLEY BRISTOW (London) said that examination of the synovial fluid seldom gave positive evidence in tuberculous cases, even when, as was his practice, three guinea-pigs were injected; hence a negative result was of no value. He did not consider removal of a piece of synovial membrane for diagnostic purposes dangerous. Like other speakers, he had been much impressed with Hibbs's results by fusion operations, including that on the knee, where no radical removal was attempted. He did not fear shortening from operations on the knee in childhood, as the epiphyseal line need not be reached; prolonged and careful after-treatment was necessary to prevent bending during growth. If this precaution was observed no precise age limit need be fixed. He deprecated any attempt to divide the profession into two schools of treatment, operative and non-operative; each case should be dealt with on its own merits.

Mr. D. MACRAE AITKEN (London) hoped that the treatment of the future would be by anticipation and prevention of tuberculosis. He agreed that the essential principle of rest for an inflamed joint could be carried out, not only by splints, but also by such operations as extra-articular fusion of the hip, osteotomy, and amputation.

Sir ROBERT JONES (who presided) also begged that there should be no attempt to form two camps with opposing methods of treatment. While he had awful memories of the old surgical epoch in the treatment of tuberculosis, he was prepared to recognise that such an operation as extra-articular arthrodesis of the hip, by providing effective rest for the joint, complied with the principles he advocated—namely, adequate fixation of the affected joint, prevention of recurrent deformity, fresh air, and general treatment. He found it hard to follow the American statistics, quoted by Mr. Girdlestone, in which only 2 out of 150 cases were completely satisfactory after three or more years of conservative treatment. Such figures would have seemed ludicrous to Hugh Owen Thomas working under conditions much less favourable.

Mr. GIRDLESTONE, in reply, said that he did not fear dissemination after operations on tuberculous joints, because the body was accustomed by then to deal with recurrent doses from the lymphatic focus. He regarded the use of a tourniquet as a safeguard and agreed that osteotomy might produce healing, although he preferred arthrodesis. He did not advise arthroplasty for tuberculous cases.

Demonstration at Grangethorpe Hospital.

At an afternoon demonstration Mr. R. OLLERENSHAW (Manchester) showed a series of cases, illustrated by simple diagrams of technique; among them, three cases of foot-drop treated by Campbell's posterior block method, some excellent results after various hip operations, and a series of congenital deformities with problems successfully overcome. A case of congenital dislocation of the hip, diagnosed as two months old, had been reduced (after Putti) without manipulation by persistent abduction of the lower limbs. Some spastic cases on whom Royle's operation of sympathectomy had been done some years previously showed only temporary improvement; better results had been obtained by Stöffel's peripheral nerve division. In a case in which synostosis of the radius and ulna had followed a forearm fracture in a child rotation of the forearm had been restored, after union of the fractures in good position, by Baldwin's method of resecting a small piece of the ulna near the wrist, so that the radius carried the ulna styloid process with it when it rotated.

Dr. H. POSTON (Manchester) exhibited results of compound fractures involving joints on which primary excision of the wound had been done within a few hours of the accident, followed by swabbing and skin infiltration with 1 per cent. mercurochrome and fixation in plaster-of-Paris. The only drainage had been down to the sutured capsule for the first 48 hours.

Dr. MARGARET GREG demonstrated a series of cases of renal rickets with dwarfing and of adolescent rickets with somewhat similar bone changes, as seen in skiagrams.

Dr. J. G. JOHNSTONE showed cases illustrating various difficulties met with in the treatment of congential dislocation of the hip, including the development of osteochondritic changes in the head of the femur and recurrent subluxation. One case was walking well after reduction at 9 years old.

Mr. HARRY PLATT (Manchester) demonstrated transplants of the trapezius for deltoid paralysis, in which there was good stabilisation of the joint during abduction. A case of vertebral osteochondritis shown has been used by Calvé to illustrate his recent article. In two cases the power of opposition had been restored to the thumb by transplantation of the sublimis tendon of the ring-finger into the flexor longus pollicis.

Dr. S. POPE (Manchester) summarised a thesis on the experimental production of birth palsies. By using 24 dead fœtuses and extracting them from a machine by methods imitating those of obstetrics, with varying conditions of resistance, he had succeeded in producing a number of lesions of the brachial plexus and tears of the sternomastoid which correspond to those met with clinically.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1928 statistics of four large towns, with widely differing industries:—

Name of district and estimated (R.-G.) population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality from childbirth.
Sheffield .. (515,400)	16·4	11·8	0·94	1·37	1·9	1·6	73/38	41	6·9
Leicester .. (246,000)	16·2	11·2	1·24	1·12	1·5	1·8	71/31	16	3·5
Nottingham . (266,600)	17·7	12·8	1·10	1·44	2·8	1·5	85/40	28	5·5
Blackburn .. (125,100)	13·8	12·2	0·82	1·30	2·5	2·7	80/38	28	6·3

Sheffield.

Dr. F. E. Wynne draws attention to the altering age-constitution of the population and to the possibility of a progressive rise in the death-rate from all causes in the coming years. He gives a table comparing the age-constitution of the population of Sheffield at the censuses of 1911 and 1921, which shows that in the latter year there was a decrease in the population at 0–10 years, an increase at 10–20, a decrease at 20–40, and an increase at 40–80. Environmental sanitation has been improved by the completion, during 1928, of the scheme for the conversion of privies into water-closets and attention is now being turned to the substitution of modern water-closets for trough closets and waste water-closets, and of sanitary bins for the old insanitary ash-pits.

There were 61 notifications of small-pox with no deaths. The notifications of pneumonia numbered 2693, of which 328 were removed to the city hospital for treatment. The death-rate from pulmonary tuberculosis among the grinders may have been reduced by unemployment in their trade, but, however that may be, it is very satisfactory that the Sheffield death-rate from all forms of tuberculosis is the lowest of the 18 great towns of England and Wales with populations exceeding 200,000 with the exception of Plymouth (0·90) and that the Sheffield rate for pulmonary tuberculosis (0·745) is lowest of all these towns with the exception of Portsmouth (0·744). Dr. John Rennie, tuberculosis medical officer, emphasises the fact that their efforts are directed towards a decrease in the proportion of infectious cases among the notifications and the establishment of a diagnosis of tuberculosis in the earliest stage of the disease. The cases on the register at the end of 1928 numbered 5067, of which 1134, including nine children under 15 years, were "open" cases. Ninety-three per cent. of the pulmonary cases notified were examined by the dispensary staff. The number of notifications of tuberculosis of the lung was about five times the number of deaths, and the deaths were about the same in number as the notifications of "open" cases. The medical practitioners sent 2509 "suspect" cases to the dispensary for diagnosis, and in addition 2371 contacts were examined. The diagnosis of "suspects" and "contacts" often entails observation for long periods and residence in the observation beds. Thus only 124 of the suspects and 1575 of the contacts were definitely classed, without a period of observation, as non-tuberculous. The beds allotted for the treatment of tuberculosis appear to have now

reached a maximum figure and waiting-lists for institutional treatment are things of the past. For respiratory tuberculosis alone there are 504 beds.

Dr. C. Lee Pattison, surgical tuberculosis officer, reports that the period of stay in the King Edward VII. Hospital for non-pulmonary tuberculosis has been reduced to an average of 275 days by securing the patients at an earlier stage of the disease. Provision has now been made for adult patients with bone or joint tuberculosis at Nether Edge Hospital. As regards light treatment, which has been continued both at the King Edward Hospital and the dispensary, Dr. Pattison says: "In some types and with certain degrees of activity of the disease, ultra-violet light treatment is indicated and proves definitely beneficial, but in other instances it should be avoided as in them it appears to be useless or even harmful. At the hospital irradiated foods have been found beneficial in some cases and may prove useful when cod-liver oil is not well tolerated. During the year a clinic for lupus has been started and up to the present the results obtained from general radiations with ultra-violet light and local treatment with a Kromayer lamp have been very gratifying.

It is still impracticable to apply all the powers contained in the Housing Acts, and there is much overcrowding. Progress has been made with reconstruction schemes. Thus in the case of three schemes, involving 173 houses, all the areas have been cleared, and the tenants moved to the Wybourn Estate, and in another area, involving 126 houses, condemned in 1928, a considerable portion has been cleared. Proceedings are pending with regard to two other areas involving 95 and 174 houses respectively. During 1928 an interesting departure was made by the allocation of 26 municipal houses to families living under unsatisfactory conditions, among whom there was an "open" case of tuberculosis. Twenty-three families have been rehoused under this scheme and their members have been examined at the dispensary, and a striking improvement in the health of the children has been noted since rehousing.

A table given by Dr. Wynne shows that the maternal mortality from childbirth has been considerably higher during recent years. Thus in 1923 it was 4·02, and in the five succeeding years 4·53, 4·93, 5·99, 7·27, and 6·04. The puerperal sepsis rate alone during the last three years was 2·33, 3·64, and 3·79.

Leicester.

Dr. C. Killick Millard gives a survey of the small-pox experience in his city which for 40 years has "set the compulsory vaccination law at defiance." During that period 90 per cent. of the children born in Leicester have not been vaccinated. Up till last year there were four small epidemics—namely, in 1892–93 with 358 cases and 21 deaths; in 1902–03 with 394 cases and 21 deaths; in 1903–04 with 321 cases and 4 deaths; and in 1925 with 72 cases and no deaths. The last mentioned was of the mild type which apparently breeds true and Dr. Millard goes on to describe the epidemic of 1928–29 which was also of the mild type. On May 11th, 1928, small-pox was introduced by a tramp and from that date there were other introductions of the disease, generally by missed cases, causing spread of the infection with intermissions up to June, 1929. In all there were 90 cases in 1928 and 107 in 1929. There were no deaths. The vaccinated cases numbered 23 and the unvaccinated 174. Medical practitioners were encouraged to visit the small-pox hospital to familiarise themselves with the signs and symptoms of the "mild" disease. Some who had not been recently vaccinated refused—unwisely, says Dr. Millard, as every doctor may have to attend a small-pox case and should surely protect himself by vaccination. Vaccination was pressed in the case of "house" contacts, but not so much so in the case of "outside" contacts. Of 542 house contacts, 303 submitted to vaccination, whilst of 237 outside contacts 103 were vaccinated. A great point is made in Leicester of close supervision of contacts. Exclusion of contacts from work rested with the employer and the amount paid in compensation to contacts kept from their work was £153. The number of new cases occurring was included in the weekly returns sent to the press, but there was no attempt to induce the public to get vaccinated. Apart from the contacts the vaccination figures were lower than usual. Dr. Millard throws out the suggestion that when the administration of the Vaccination Act is handed over to the health authorities, it might be made the subject of local option. He states that there has never been a case of encephalitis following vaccination in Leicester, but points out that such an occurrence would be rather unlikely when there is so little vaccination.

The year 1928 was epidemic for scarlet fever. There were 1971 cases with four deaths, and Dr. Millard points out that the "new treatment" was very successful in cutting short the disease and preventing complications. Dr. H. Stanley Banks, the medical superintendent of the hospital, described this treatment by the intravenous injection of antitoxin in a paper in THE LANCET of Feb. 23rd, 1929. The cases treated in hospital were divided into two groups. Group I. included all the more severe cases numbering 404. They were all treated intravenously, had a complication rate of 3·2 per cent., with one death, and their average stay in hospital was 17·7 days. Group II. included 458 cases who had no antitoxin and 102 who had it intramuscularly. This group included all the milder cases. They had a complication rate of 23·7 per cent. and their stay in hospital averaged 26·8 days, and there was also one death among them. Dr. Banks is most enthusiastic about the treatment and considers the whole outlook in the hospital treatment of scarlet fever has been altered thereby. Scarlet fever wards under the new treatment may be almost surgically clean. There are practically no complications and scarcely any medical or nursing treatment is needed after the first few hours. Hospital beds go twice or thrice as far.

Dr. Banks has also made a trial of the sanocrysin treatment of pulmonary tuberculosis in 22 cases. He thinks the type which did best was the middle case, neither early nor too advanced, which did not appear to respond well to routine sanatorium treatment. Fourteen of this type were treated; in six the results were remarkably good, and in eight they appeared to be favourable. He points out that there has been no opportunity to speak of any but immediate results and that the late results will probably depend on the patient's ability to conform to the rules of the tuberculous life. The cost of sanocrysin for the first course is about £3, and for the second course £2 6*s.* 8*d.* per case, and the considerable labour involved in giving the injections, making tests and examinations, and keeping records makes the treatment expensive. The Leicester special clinic for the early diagnosis of cancer which was started in July, 1927, and restricted to women and affections of the breast and uterus, has now been extended to all forms of cancer in either sex.

Municipal houses, Dr. Millard points out, have done little or nothing to benefit the class most in need of relief, and he commends the solution of the problem put forward by the Housing and Town Planning Council of Great Britain in their report entitled "A Policy for the Slums." This report advocates a children's rent allowance scheme. Dr. Millard also emphasises the fact that the municipality can safely build a larger proportion of houses with two bedrooms, seeing that as landlord it has the power to control their use.

Blackburn.

Dr. V. T. Thierens, in his first annual report, says the year has been one of great industrial depression, with consequent unemployment. The death-rates from respiratory diseases and from pulmonary tuberculosis among the cotton operatives were lower than in 1927. During the year 94 municipal and 41 private enterprise houses were built, and at the

end of the year 60 municipal and 70 private enterprise houses (none of which was State-aided) were under construction. The housing problem in Blackburn is less urgent than in other towns. The population is actually less than it was in 1919 to 1924. There are no real slums, although there are some areas of unsatisfactory property. There were, however, 471 Blackburn residents living in rooms, who were on the waiting-list for municipal houses at the end of 1928. There are 88 houses let in lodgings, housing about 1000 persons, with poor accommodation and excessive rents. In some instances the rent for two partly furnished rooms exceeds that asked for houses on the corporation estates. At the end of the year there were 57 caravans in use as human habitations. There are 181 factory chimneys, 103 of which have smoke-preventing appliances. Blackburn's effort to prevent industrial smoke does not appear to be energetic. The permissible limit of black smoke for a furnace serving one boiler is 4 minutes in the hour, or twice that of Sheffield. The limits for 2, 3, and 4 boilers are 5, 6, and 7 minutes respectively. During the year 103 observations were taken and in 54 excessive smoke was emitted. The only action mentioned is the service of 21 informal and two statutory notices.

The veterinary inspector, Mr. E. J. Burndred, reports that as the result of regular inspection of the cattle aided by examination of milk samples, three cows in the borough farms were found with tuberculosis of the udder, and seven cows were slaughtered and one died which suffered from advanced tuberculosis. The number of milk cows stalled in the borough is not mentioned. There are three farms supplying Certified milk to Blackburn, two local and one some distance away. The price of this milk ranges from 7½*d.* to 4*d.* per pint. There are 18 farms in the district producing Grade A milk, five of which are in the borough and 13 in the county. The price is from 3½*d.* to 4*d.* per pint. Two dairies, one in the borough, are licensed for pasteurised milk, and a new dairy is being established in the neighbourhood by a number of coöperative societies for the pasteurisation and bottling of milk, so that in the near future a much larger proportion of Blackburn's milk will be pasteurised. During the year 446 samples of milk were examined for the presence of dirt. The samples taken from producer-retailers in the borough were better as regards contamination than those taken from producer-retailers outside the borough and those taken from retailers in the borough, who procured their supplies from outside, were much worse than the two classes first mentioned. A standard has been laid down for the equipment to be required from milk retailers in the borough. A specimen plan is given in the report, showing the arrangement of the two rooms needs for washing and storing the utensils and for storing the milk respectively. At the end of the year about 12 of the 50 retailers had complied with these suggestions. The seventh clean milk competition extended over the whole year. The competitors are divided into two classes, one for Certified and Grade A milk, and the other for all other milk. There were 13 entries for the one class and six for the other, but the ordinary milk producers do not yet take much interest in the competition.

There were 104 notifications of diphtheria with a case fatality of 10·49 per cent. Twelve of the 13 fatal cases received no antitoxin treatment for 4 to 12 days after the onset of the disease. There were ten notifications of small-pox, all of the mild type. A table is given showing the condition at the end of 1928 of the patients discharged after treatment for pulmonary tuberculosis from Meathop Sanatorium. Of 20 patients discharged in 1909 or before, 12 are dead, 7 untraceable, and 1 is in full work with no symptoms. Of 30 discharged in 1916, 15 are dead, 5 untraceable, and 9 in full work and 1 unable to work. Of 24 discharged in 1923, 8 are dead, 4 untraceable, 3 at full work with no symptoms, 4 in partial work, and 5 alive. Of 17 notified cases of ophthalmia neonatorum one became totally blind and two were left with serious and disabling impairment of vision. In five of the cases domiciliary nursing was undertaken by the Nursing Association under agreement with the corporation. A bed is now available at the corporation hospital for in-patient treatment.

Nottingham.

Dr. Philip Boobbyer informs us that in 1916, 20 months after the outbreak of war, the city council discontinued printing annual health reports and gave instructions for the statistical and other records to be prepared in manuscript. The document just issued is therefore a survey of the 13 years for which printed annual reports are lacking. It is also Dr. Boobbyer's farewell report after 40 years' service as medical officer of health of Nottingham, and is commented on elsewhere in this issue.

MENTAL HOSPITAL REPORTS.

Of the two *Kent County Mental Hospitals*, that at *Barming Heath, Maidstone*, had 1925 patients in residence on Dec. 31st, 1928. This was an increase of 72 on the previous year, despite the transfer of 40 men. The medical superintendent hopes that the shortage of accommodation will be met by the provision of an admission block. The admission-rate for women was a record for the hospital. The recovery-rate was 24·7 per cent. and the death-rate 7·1 per cent. Autopsies were held in 80 out of 87 cases. Eighteen patients are under treatment for tuberculosis, but the death-rate from this cause was half that of the average in mental hospitals. There was one case of dysentery, the first for three years, two cases of erysipelas, eight cases of scarlet fever, and some influenza. The occupation therapy department had a very successful year; the printing and bookbinding department supplied bound periodicals for the wards. Parole is given freely. A kinematograph apparatus has been fixed in the recreation hall. Forty-one attendants and 49 nurses are certificated or registered, and 18 women nurse in the male wards. Twelve nurses arrived from Denmark last year for a six months' course of training in this hospital. At *Chartham Downs, Canterbury*, there were 1354 patients at the end of last year, 40 cases having been transferred from Barming Heath. Here also the medical superintendent hopes for a new block for recent and curable cases. The recovery-rate was 23 per cent. and the death-rate 8 per cent. Post-mortem examinations were held on 90 of the 127 patients who died, and the pathological department carried out over 2000 routine examinations. The hospital was entirely free from both influenza and dysentery, but the death-rate from tuberculosis is rather higher than the average. A verandah was added to the female tuberculosis ward, and plans for a new operating theatre have been passed. More accommodation is needed for the nursing staff, and plans are under consideration. Thirty-eight attendants and 23 nurses are certificated or registered; no women nurses are employed on the male side.

Barnwood House Hospital for Mental and Nervous Disorders, Gloucester, records a successful year of work in 1928. On Dec. 31st there were 152 patients, including 19 voluntary boarders. There was a recovery-rate of 35 per cent. and a death-rate of 8 per cent. The general health was good. Three of the five new bedrooms were provided with "Vitaglass" verandahs. The city having extended an electric cable past the hospital, the committee at once made arrangements for securing a supply of current. The 33 acres of land purchased in 1926 have now been taken over as additional farm land. Eight patients of each sex were allowed out of the grounds, and a seaside house for the summer was taken at Tenby. Members of the staff have held classes in rug-making and other handicrafts. A physician, a surgeon, a pathologist, and a dentist attend when required. Of the attendants 63 per cent. and of the nurses 41 per cent. are certificated, seven

having obtained their R.M.P.A. certificate during the last year.

At the *City of Birmingham Mental Hospital* there were 2671 patients on the books on March 31st, 1929. Lack of accommodation is being met by the inclusion of an adjoining fever hospital and private house, the former for female patients and staff, and the latter for male convalescents. As usual, research has played an important part in the year's work, and the chief medical officer submits a preliminary report from the three institutions together. The dental surgeon notes that, as in former years, not more than 2 per cent. of the patients admitted can be said to have a healthy dentition. More conservative dentistry is found in the younger patients, and this is held partly responsible for the greater amount of focal sepsis. Septic conditions of the upper air passages were found in half the cases admitted, the commonest condition being a multi-sinusitis. The tonsils were diseased in 52 per cent. of the cases investigated, and adenoid vegetations were removed from 10 per cent., all adults. The ear, nose and throat surgeon performed 230 operations during the year, and, together with the director of the research laboratory and chief medical officer, has published a report on the relation of sinusitis to mental disorder. Another communication submits that disease extending from the sphenoidal sinus may cause symptoms indicating disorder of the pituitary gland. Gynæcological disturbances were found in 67 per cent. of the women admitted, but the septic condition was only serious in one case. Most of the women suffered from chronic infections of the cervix. A number of displacements and other gynæcological conditions were corrected. Further evidence was collected during the year to associate mental disorder with influenza. A striking absence of noise and excitement in the wards is attributed to the early and systematic treatment of septic conditions. In Birmingham they have no doubt that ultra-violet rays have value when suitably applied to mental disorder.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 21ST, 1929.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 119 (last week 96); scarlet fever, 2322; diphtheria, 1237; enteric fever, 116; pneumonia, 624; puerperal fever, 31; puerperal pyrexia, 91; cerebro-spinal fever, 13; acute poliomyelitis, 18; acute polioencephalitis, 3; encephalitis lethargica, 26; continued fever, 2; dysentery, 36; ophthalmia neonatorum, 108. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Sept. 24th–25th was as follows:—Small-pox 122 under treatment, 19 under observation (last week 121 and 15 respectively); scarlet fever, 1533; diphtheria, 1645; enteric fever, 18; measles, 204; whooping-cough, 203; puerperal fever, 27 (plus 7 babies); encephalitis lethargica, 125; poliomyelitis, 4; "other diseases," 13. At St. Margaret's Hospital there were 24 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 15 (5) from measles, 8 (2) from scarlet fever, 24 (2) from whooping-cough, 27 (2) from diphtheria, 144 (27) from diarrhœa and enteritis under two years, and 17 (3) from influenza. The figures in parentheses are those for London itself.

Of the deaths from diarrhœa (which have again increased by one-third) 12 each were reported from Birmingham and Liverpool, 6 from Sunderland, 5 from Hull, 4 each from Walsall and Middlesbrough, while Glasgow, Dublin, and Belfast reported 5, 8, and 9 respectively. Two deaths from measles occurred in Manchester. Three from scarlet fever and 4 from whooping-cough in Liverpool. The death from enteric fever was reported from Leeds.

The number of stillbirths notified during the week was 238 (corresponding to a rate of 38 per 1000 births), including 49 in London.

Reviews and Notices of Books.

OSTEOMYELITIS AND COMPOUND FRACTURES AND OTHER INFECTED WOUNDS.

Treatment by the Method of Drainage and Rest. By H. WINNETT ORR, M.D., F.A.C.S., Chief Surgeon of the Nebraska Orthopedic Hospital. London: Henry Kimpton. 1929. Pp. 208. 21*s.*

IN this book Dr. ORR describes his original method for the treatment of osteomyelitis and compound fractures. In cases of osteomyelitis the infected bone is incised early with adequate opening into the medulla, and the cavity is packed with vaseline gauze. The limb is immobilised in correct alignment by plaster casts or adequate splints. Dressings are done at infrequent intervals and only in consequence of rise of temperature, odour, or other special reasons. In compound fractures the principle involved is the maintenance of correct length and alignment by extension, whether by adhesive moleskin straps or by ice tongs or pins, incorporated into a plaster cast. Fixed extension having been achieved, the wound is treated by adequate drainage, and vaseline packs with very infrequent dressing. Dr. Orr's book contains much special pleading, but his thesis has both reason and results behind it, and its adoption would do much to improve the treatment of infected bone lesions. Chapters on antiseptics and on the lessons of the war illustrate the way in which Dr. Orr has reached his present views, and case-histories of patients treated by this method by the author and by other surgeons make convincing reading.

That Dr. Orr's general principle is right we have no doubt at all, and in establishing it he has achieved a notable surgical advance. Whether the details of his technique are all equally commendable is not so certain, but is of less moment. In osteomyelitis cases particularly the thoroughness of the primary operation must be of paramount importance, and the author appears to us to underrate his surgical skill in his anxiety to give full credit to the principle of his method. On the whole, however, he has put his case fairly, and his book should be read by every surgeon. Dr. John Ridlon contributes a delightful introduction. We doubt whether the general surgeon is quite so black as Dr. Ridlon paints him, but feel sure he will enjoy such witty castigation. Dr. Ridlon quotes Talleyrand's saying, "Be zealous; but don't be too damned zealous"; that remark could be applied to his own defence of the orthopædist as well as to the alleged officiousness of the general surgeon.

SLEEP.

The Treatment of Its Disorders. By R. D. GILLESPIE, M.D., M.R.C.P., D.P.M., Physician and Lecturer in Psychological Medicine, Guy's Hospital. London: Baillière, Tindall and Cox. 1929. Pp. 276. 7*s.* 6*d.*

THIS addition to the Minor Monograph Series is intended to indicate to the practitioner the various means by which insomnia may be treated, together with a rational basis for the methods of treatment recommended. Since no comprehensive monograph on the subject of sleep and its disorders has appeared in English for some years the book supplies a definite demand, and it gives an entirely up-to-date presentation of the subject. The first section considers the several physiological mechanisms such as variations in the depth of sleep and the state of the reflexes, circulatory, respiratory, and excretory systems during sleep. Recent work shows that the basal metabolic rate is 15 per cent. less during sleep than in the waking state, and the investigations of A. Waller, Farmer, Richter, and others indicate that the electrical resistance of the body is a measure of the depth of sleep since the resistance rises during sleep and falls towards the onset of the waking state. The effects of sleeplessness both in man and animals

are next discussed. It is comforting to read the result of a review of the available experimental evidence; the conclusion is reached that by no known method has it been possible so far to demonstrate any but trifling physical or mental changes after prolonged insomnia in man. At present all that can be said is that the signs are entirely subjective and that they can be abolished after as many as 115 hours of insomnia by a single and not unduly prolonged period of sleep. It has often been maintained that sleeplessness may lead to mental disorder, but it is true that the examples usually cited are those of anxiety states, schizophrenic, or one of the common "functional" syndromes. If insomnia were the direct cause of mental disturbance it would presumably act by virtue of definite nerve-cell changes, and the resulting mental disorder would be of the "organic" type such as delirium, impairment of memory, and so forth. Such states, it is considered, are the only relevant types of reaction to insomnia and are rare. Most people will agree that anxiety and worry regarding insomnia are more potent in aggravating an anxiety state than the actual loss of sleep, and that sleeplessness in mental disorder is more symptomatic than causative.

Dr. Gillespie divides the various types of sleep disorder into three main classes: 1. Qualitative alterations, such as decrease (insomnia) and increase (somnolence). 2. Alterations in the incidence of sleep—e.g., attacks of sleep (narcolepsy), and the reversal of sleep rhythm, such as occurs in encephalitis lethargica. 3. Abnormal interruption of sleep—hypnagogic hallucinations, tendon-motor shocks, nightmares, night terrors, somnambulism, &c. From the therapeutic standpoint the types of insomnia are classified as follows: 1. Sleeplessness due to physical disease—(*a*) of the central nervous system, (*b*) of other parts of the body. 2. Sleeplessness due to external irritation—e.g., climatic conditions. 3. Sleeplessness resulting from mental causes. This classification appears unnecessarily complex, and the simpler method adopted by other authors which divides the causes of insomnia into two main groups—(1) physical and (2) psychical—would include all the above. The difficult subject of treatment is admirably dealt with in this book and the various hypnotics in use are discussed. The author has been lucky in finding that "paraldehyde in doses of two to three drachms is often effective" in cases of sudden excitement and delirium tremens. The exceptional instances mentioned—in which the dose has to be repeated in an hour or so—in our experience are more often the rule. The judicious use of the barbitone series of hypnotics is rightly defended. Finally, the various theories as to the nature of sleep are reviewed in an interesting manner, and especially that relating to the possible presence of a sleep-controlling centre in the region of the third ventricle and Pavlov's view which identifies sleep with widespread cortical inhibition.

The book may be read with pleasure and profit by students and practitioners.

OTOSCLEROSIS.

A Résumé of the Literature to July, 1928. Compiled under the direction of the Committee on Otosclerosis, American Otological Society. New York: Paul B. Hoeber. 1929. Two vols. Pp. 724. $15.00.

THIS work, which is claimed to be the first comprehensive survey of the literature on this subject ever made, is a résumé of all the literature on otosclerosis down to July, 1928. The compilation has been carried on under the supervision of Dr. Arthur B. Duel as part of a programme of research in this disease begun by the American Otological Society under a grant of $90,000 made by the Carnegie Corporation. The Committee have begun their work in the right way, for it is essential that a research of this nature should start with a full record of past investigations. The work is well edited and arranged, and is supplied with a full index of subjects and another of personal names, repeated in each volume, while the second volume also contains a complete bibliography arranged alphabetically under the names of authors. The first volume deals with the pathology and ætiology of otosclerosis, and the second with symptoms, diagnosis, and treatment. Treatment is discussed under the heads of local surgical measures, local non-operative measures, and general treatment, and, being largely historical, is partly concerned with methods which have been tried and abandoned. It forms somewhat melancholy reading, for it tells a story of therapeutic efforts ranging from removal of the stapes to the use of radium and X rays, some of which have been launched with enthusiasm only to be relinquished on further trial. Further research is urgently needed, for there is at present no reliable method of treating this widespread and serious affection.

The work is a compilation to which the editors have refrained from adding comments of their own. As a work of reference it should be in the hands of every otologist.

MEDICINE: ITS CONTRIBUTION TO CIVILISATION.

By E. B. VEDDER. London: Baillière, Tindall and Cox. 1929. Pp. 398. 22*s.* 6*d.*

Colonel Vedder has put together an excellent account, for popular and semi-popular consumption, of the causes of disease and of what has been achieved in disease prevention and what is to be aimed at and hoped for in the future. The first part gives a sane and sensible discussion of diet, exercise, ventilation, &c., and adequately describes the important features of infectious diseases. The second part summarises the facts of the decline in the death-rate and analyses the components of the increase in the average expectation of life which is the triumph of modern sanitation. He draws the sound conclusion—if combined and sincere effort can do so much, it can doubtless do much more, and at a small cost. The queer thing about the book is its title; the contribution of medicine to material well-being is obvious enough, but has it done nothing for the mind and spirit as well?

AN INTRODUCTION TO THE HISTORY OF MEDICINE.

With Medical Chronology, Suggestions for Study and Bibliographic Data. Fourth edition. By FIELDING H. GARRISON, A.B., M.D., Lieut.-Colonel, Medical Corps, U.S. Army, Surgeon-General's Office, Washington, D.C. London: W. B. Saunders Company, Ltd. 1929. Pp. 996. 55*s.*

Garrison's "History of Medicine" needs no introduction to English readers. It is seven years since the appearance of the last edition, and while there may not be very much to add to the earlier sections on the history of medicine, many developments which occurred during the decade following the war had to find a place. It is in the later chapters, therefore, that the reader must look for changes; the chronological section has been increased nearly twofold. A new chapter on medicine in prehistoric times has been added and forms the second chapter of the present edition. In dealing with the history of recent advances the author has wisely confined himself to giving salient examples, realising that to attempt exhaustive handling would be premature and confusing to the reader. In view of the amazing complexity of the subject praise is due to Colonel Garrison for the way in which he has dealt with his material; nothing of importance seems to have been omitted, and the student will find in this volume an excellent epitome of medical history. Anyone interested either in the works of the fathers of medicine, or in the men themselves, or in the history of epidemics or diseases will find information in this book, and if it is not full enough for his purpose he can refer to original sources to which references are given. In order to keep the size of the book within reasonable bounds it

has been necessary to print some of the sections in smaller type, but the printing and paper are so good that no strain is thrown on the eyesight of the reader.

LABORATORY MANUAL FOR COMPARATIVE ANATOMY.

By MALCOLM E. LITTLE and RUDOLF T. KEMPTON, New York University. New York: The Macmillan Company. Pp. 286. 10*s*.

THIS book is written as a practical guide for students in American laboratories, a fact which renders it in some ways less apt for English students. Alligators, for example, are not common objects in laboratories over here, nor do we often see Necturus or Cryptobranchus given out, as one may distribute frogs, to waiting classes. But these details need not be considered seriously. The book, wherever we have tested it, gives accurate information, and the directions are likely to be of practical value in laboratories where the help of a demonstrator is available if required. When one realises that the book is intended as a compromise between systemic and systematic teaching, and is divided into distinct parts allowing change of order, one's first sense of slight confusion in arrangement is dispersed. The usefulness of a laboratory manual depends largely on the text-book employed at the same time. This book seems to us to provide a good course for students if used in conjunction with a suitable larger book.

THE VISCERAL NERVOUS SYSTEM.

En oversikt over den kliniske undersökelse av det viscerale nervesystem og en kritikk av de forskjellige prövers praktiske verdi stöttet paa egne undersökelser. By Dr. G. LANGFELDT. Bergen: J. W. Eide's Boktrykkeri. 1929. Pp. 134.

THIS monograph includes a review of the clinical examination of the visceral nervous system and a criticism of the practical value of various tests of its functions. Dr. Langfeldt has been awarded Prof. Skjelderup's gold medal for the work here published, which is based on studies undertaken in Hamburg and Bergen, the experiments being carried out at the Friedrichsberg Hospital in Hamburg and the Haukeland and Neevengaard Hospitals in Bergen. In his introduction the author produces physiological and anatomical evidence which shows that there is no absolute functional antagonism between the sympathetic and parasympathetic systems. Much space is devoted to tests with atropine and pilocarpine, as well as to physical tests, such as Aschner's reflex. Many of the conclusions to which the author comes are negative, and he has found that the subcutaneous tests with various drugs (pilocarpine, &c.) are worthless in the diagnosis of chronic encephalitis, dementia præcox (of which alone he examined 71 cases), and various other mental diseases. Summaries in German and English are appended, but there is no bibliography—a rather unconventional omission.

BACTERIOLOGY AND SANITARY SCIENCE.

By LOUIS GERSHENFELD, Ph.M., B.Sc., P.D., Professor of Bacteriology and Hygiene in the Philadelphia College of Pharmacy and Science, Philadelphia. Philadelphia: Lea and Febiger. 1929. Pp. 432. $4.00.

THIS is a relatively short text-book on bacteriology. The subject is treated mainly from the general hygienic and epidemiological points of view, and in consequence the descriptions of individual species and of their pathogenic effects are reduced to a minimum. The book is primarily written for students in pharmacy, chemistry, and allied sciences, but it is nevertheless dominated by the pathogenic micro-organisms, both human and animal, and only brief reference is made to the field of industrial bacteriology. On the whole a very fair account of these aspects of the science is presented, without many details of technical procedures. The Wassermann and Widal tests are described in general terms, from which the reader will gather their import and their application, but without necessarily realising that "complement" is in practice usually synonymous with guinea-pig's serum. This example is intended not to criticise but to explain the scope of the book. The allocation of 40 pages to the technique of culture and staining do not accord with the disregard for technical detail which pertains elsewhere. A similar lack of balance is observable in other places. Thus the virus diseases are allotted only ten pages and suffer badly from this compression, whilst diseases of plants are hardly worth mentioning if less than a page can be spared to them. It does not help the reader to be told that "the following three methods are employed in making microscopic examinations of milk: Prescott-Breed method, Stewart-Slack method, and the Doane-Buckley method" if the significance of this imposing concatenation of proper names is not explained to him. The arrangement of the book is curious. Why should the bacteria be separated from the higher bacteria by an article on sterilisation, and that article separated from the allied subject of insect extermination and insecticides by chapters upon animal parasites and venomous reptiles? The chapters on sterilisation and disinfection are amongst the most comprehensive in the book. Apart from these minor matters of detail the book is well adapted to give the students for whom it is designed a sound conception of bacteriological principles and to the practising pharmacist a clear conception of the nature and rationale of many of the products he is now called upon to sell.

HANDBOOK OF BACTERIOLOGY.

Second edition. By JOSEPH W. BIGGER, M.D., Sc.D. Dub., Professor of Bacteriology and Preventive Medicine, University of Dublin. London: Baillière, Tindall and Cox. 1929. Pp. 452. 12*s*. 6*d*.

THIS excellent handbook has now reached its second edition and has been very completely revised. We confirm the favourable opinion expressed at its first appearance; it is one of the best students' text-books of bacteriology on the market. It is short, concise, and well written, and the author has succeeded in avoiding the sacrifice of essentials to brevity and the cramped, unreadable style familiar in books which have been too drastically cut down. At the same time we note that the present edition seems slightly fatter than its predecessor, and we trust that Prof. Bigger will sternly repress any further tendency to expansion, since in its present form and bulk the student can study the book at his convenience.

FOOD, HEALTH, VITAMINS.

New edition. By R. H. A. PLIMMER, D.Sc. Lond., Professor of Chemistry in the University of London at St. Thomas's Hospital Medical School; and VIOLET G. PLIMMER. London: Longmans, Green and Co. 1929. Pp. 120. 3*s*.

THIS is a new and considerably enlarged edition of the book by the same authors previously published under the title of "Food and Health." The expansion of the book has been made necessary by recent developments in our knowledge of the vitamins, and it now supplies in simple language a valuable summary of modern views on this subject. A new chapter has been added dealing briefly with the general principles of dieting in pregnancy, old age, and obesity. Two weekly menus for standard-sized families are included to illustrate how simple diets containing balanced quantities of the essential food constituents can be prepared at a minimum cost. The authors perhaps take up too uncompromising an attitude on the pathological consequences of minor degrees of vitamin B deficiency, since this question is still highly controversial. In other respects their book can be recommended as furnishing sound advice to the layman who wishes to know what kinds of food are most likely to promote his general well-being.

THE LANCET.

LONDON: SATURDAY, OCTOBER 5, 1929.

MENTAL HEALTH IN 1928.

"Insanity is . . . only a disease like other diseases . . . and a mind diseased can be ministered to no less effectively than a body diseased. But the old conception of insanity dies hard, and its traces are still persistent. The modern conception calls for the eradication of old-established prejudices and a complete revision of the attitude of society."

THIS quotation from the Report of the Royal Commission remains the text of the Fifteenth Annual Report of the Board of Control, Part I. of which has just been published.[1] The sentence would provoke no dissent if the single-lettered word "a" were omitted. Insanity is disease like other diseases, but to call it "a" disease is to overlook the fact that it is nothing specific but due to a multitude of disorders of body and mind. Hospitalisation of all institutions for the mentally afflicted is the Board's great aim, although homes will still be needed for the chronic and infirm cases. Much has been accomplished; much remains to be done. Many institutions still fall short in greater or lesser degree of the standard set by the best, and the best could be still better. Many local authorities take a conservative position towards modern developments; while recognising the reasonableness of a cautious attitude towards new "cures," the Board feels strongly that in treating mental disease experiments should be made freely. Even if statistical results are disappointing, the patient and his relatives obtain an incalculable psychological benefit from the feeling that everything possible is being done, and that there is always hope. The only direction at present in which there is definite therapeutic advance is the malarial treatment of general paralysis, to which we referred in a recent issue[2] It is a regrettable and rather surprising fact that in all other departments of mental disease the average recovery-rate—30·84 per cent. for last year—has remained practically constant over a long period of years. This may be partly due to a higher standard of recovery nowadays, but whatever its cause, it must combine with the greater longevity of chronic cases, and the increase in general population, to produce a steady increase in the number of persons under care. The average annual increase of such persons is, in fact, just over 2000, and the total number on Jan. 1st, 1929, was 141,080. The Board points out that this increase by no means indicates an alarming increase in mental disorder, but it does mean a disquieting shortage of accommodation. To increase the number of beds in an existing institution, or to build a new one, may cost £500 per bed, and makes a heavy demand on the finances of the local authority. For this reason it is a true economy to spend money on the various hospitalisation schemes which make for the most intensive use of beds already available.

On this ground the Board strongly deprecates understaffing on either the medical or the nursing side, and welcomes the progress made during the year in the provision of restful and comfortable accommodation for nurses. It regrets the unsettled conditions of training in mental nursing and the difficulty of securing women nurses of good type and anxious to seek a qualification. It notes, however, the paradox that hospitals which set a high standard have the least difficulty in obtaining probationers. It urges the appointment, wherever possible, of a special occupation officer, citing the experience of the Dutch hospitals, Gantpoort and Maasoord, which emphasises afresh that there are many patients, including violent types, who benefit considerably and become far more amenable if trouble is taken to find the occupation best suited to the individual. This task demands experience, skill, and time, which an overworked medical and nursing staff cannot be expected to devote. Another measure which can be confidently expected to reduce the need for beds is a well-staffed out-patient centre. To overcome the foolish tendency to postpone treatment until concealment is impossible, the Board invokes the coöperation of the press. Adequate advance in new methods cannot be made without coördination, and the Report urges local authorities to encourage scientific research in such therapeutic reinforcements as ultra-violet and other light treatment, electrotherapy and hydrotherapy. Much of the work which is already being done would have its value greatly enhanced if the results were recorded under a uniform and approved schedule. A committee of the Medical Research Council is taking steps to associate certain mental hospitals in a scheme of this kind. The Board notes with pleasure an increase in the number of mental hospitals that are linked up with medical schools, for it feels that nothing could be worse for psychological medicine than any tendency to divorce it from other branches of medical study. Another development worthy of every encouragement is the organisation by the Royal Medico-Psychological Association of study tours of foreign hospitals. The Board suggests that a report of these tours by the Association would be of great value to those who are unable to participate in them. One suggestion coming from abroad is the appointment of a skilled psychiatrist as after-care officer. This experiment has been made with great success at Maasoord, Rotterdam, which has a markedly lower readmission-rate than other Dutch hospitals which have no such official. Another valuable appointment would be that of a social worker as almoner, to supplement the admirable work which is now done by the Mental After-care Association in tempering for the discharged patient the shock of return to a stressful and often temperamentally difficult workaday world. But when all is said and done it is the accumulation of the chronic insane, especially cases of dementia præcox, which constitutes one of the urgent social problems of the day. The cost and the wastage is terrific. Concentrated effort is needed—and will justify large expenditure of public money in research: research, that is to say, into causes, into a group of therapeutic methods, intensive experiment with occupation therapy, and any other kind of therapy, so long as conducted in a limited field and on lines that render it possible to estimate results. It would, we think, be worth while to offer valuable prizes for essays outlining details for research; not for the research itself, but for grounds for expecting useful results from further study. The public wants awakening to the gravity of this problem.

The outstanding events of the year in the field of mental defect were the passing of the Local Government Act and the publication of the Report of the Mental Deficiency Committee. The Board's Report reviews the relevant sections of the Act and points out the benefits which may be expected to result from uniform control. It is hoped that both ascertainment and classification will be greatly improved. The figures given in the Wood Report make it highly

[1] H.M. Stationery Office. 1929. Pp. 93. 1s. 9d.
[2] THE LANCET, August 24th, p. 402.

probable that the increased accommodation made available by the Act will still be inadequate. The older type of poor-law institution is only suitable for the untrainable and unemployable classes, but a great many defectives of this type are still occupying space in mental hospitals, and their transfer to a poor-law institution would release beds urgently required for curable cases of mental disease. For the educable defective new colonies are still badly needed, and little was done during 1928 to meet the shortage; Hampshire and West Riding County Councils opened new colonies, and three other new institutions also became available. Several designs for big schemes are now, however, well advanced, and the Board is of the opinion that every local authority ought to have a central colony or a share in a colony where there is enough land for workshop and field employments and recreation. Although the actual amount of new accommodation—625 beds—falls so short of urgent requirements, yet it is nearly double that of 1927, and a large number of local authorities are taking steps in the face of many difficulties to fulfil their statutory obligations. While taking a guarded attitude towards sterilisation, the Board definitely recommends the prohibition of marriage of defectives. Shortage of accommodation, therefore, the key-note of the reports on mental deficiency for many years past, is still the principal trouble to-day, and has extended to mental hospitals also. Most of the hospitals are overcrowded and many have already been expanded to the uttermost limit. The position is serious; a modern mental hospital takes time to design and construct, and no local authority can afford to postpone serious efforts to meet the problem until the strain on their existing hospital has become acute.

CURES AND PREVENTION.

THE author of a new American handbook on "The Common Head Cold and its Complications"[1] explains that if the information he has to offer is not altogether satisfactory "it is because our scientific knowledge is not in all respects final." As Regius Professor of Medicine at Oxford Sir FARQUHAR BUZZARD would doubtless agree with this statement, but in the address published on p. 695 he suggests that we know enough about colds to feel hopeless about them. The common cold is not curable, he said; and as for prevention, the necessary measures would be so troublesome and onerous that the public would never put up with them. He advised his audience (in the manner of Mr. BELLOC) to answer, as they took their fees, there is no cure for this disease, Henry will very soon be well.

While it is quite true that the symptoms of infectious diseases are mostly the signs of a battle between parasite and tissues, we cannot agree either with his statement that "all the material facts about" the common cold are already known, or with his pessimistic outlook that no cure for that complaint will be found as relatively effective, for example, as antitoxin in diphtheria. It seems evident that there is some "material fact" about these infections of mucous surfaces which has not yet been ascertained. No one so far has hit upon any theory or any empirical procedure which will enable us to kill the microbes or prevent their injurious action on the tissues. But no cheerful believer in the intelligence of man can seriously doubt that there is a solution somewhere. Bacteriology is only just getting into its stride and immunology has hardly begun to totter on its first steps; the golden age of catarrhs is surely only just round the corner.

Meanwhile what is to be done? Sir FARQUHAR BUZZARD urges very truly that if we cannot cure a disease we should give our minds to prevention, and that we should frankly recognise that some conditions, such as the paralyses of poliomyelitis, are in effect incurable. With such doctrine no one can possibly quarrel. Medicine has always put prevention in the front of its programme, its main triumphs are hygienic rather than therapeutic, and it is along these lines that it will progress. But it remains true, and probably will always remain true, that the daily work of the medical man will be chiefly therapeutic. Prevention will sometimes fail, and the diseases of old age are, as far as we know, unpreventable; with our ageing population they will become relatively more frequent. One has, too, to recognise that a man or woman who is incurably diseased is by no means as good as dead. From their own point of view, and often enough from the world's point of view, they are as much alive as anyone else, and much of the kindly art of medicine will, we hope, always be devoted to making the rest of their pilgrimage as easy and effective as it may be. It is questionable whether medical men ever do anything more really useful, though the theory and practice of helping those who are irretrievably maimed does not perhaps play any large part in our curriculum. Medicine is not wholly materialistic: it would discharge its functions sadly if it had nothing in view but a healthy body. Let us have that by all means if we may, but if we cannot let us bear in mind that comfort and cheerfulness do many people good besides the sick man. When prevention and cure have failed, there is much left to do which is worth doing.

WORLD HEALTH ORGANISATION.

COMPETENT observers of the Tenth Assembly of the League of Nations have detected in its proceedings an unusual insistence on active progress and increased achievement. The note was heard in all directions, not only on the promotion of peace and disarmament, but in the discussions of such diverse matters as tariff barriers, international communications, child life protection, control of drugs of addiction, and even the internal organisation of the secretariat. Among them the Health Organisation of the League—a term which includes the medical director and his staff, the health committee, and advisory health council—came under review in its place. If we may judge from the discussion of its work in the Second Committee, reported in the *Assembly Journal* of Sept. 18th, and by the subsequent approval by the Assembly of the report submitted to it by the Czecho-Slovakian delegate, Mr. FIERLINGER, it emerged not only with credit, but with as much enthusiasm as the Assembly can be expected to show over an undertaking which has so far gone its way without producing political repercussions or national controversies. The output of the Organisation in terms of its publications continues to grow, while the steady increase in the variety of subjects with which it deals is made evident when the last annual report of the medical director is contrasted with those which he presented only a few years ago. The compilation and issue of returns about notified infectious diseases and similar data from the different countries of the world continue both at

[1] By Walter A. Wells, A.M., M.D., F.A.C.S., Professor of Otolaryngology, Georgetown University, Washington, D.C., with an introduction by Hugh S. Cumming, M.D., Surgeon-General United States Public Health Service. New York (obtainable in England from Messrs. Macmillan & Co., Ltd.). Pp. 225. 10s. 6d.

Geneva and at the branch health office of the League in the Far East, which has been established at Singapore. The International Health Year-book, comprising notes of the principal happenings in different countries, has taken a new form and its last issue has been so enlarged that it makes quite a formidable volume of reference. New handbooks have been prepared regarding vital statistics and the public health administration of different countries.

In the more important field of international expert study some notable contributions have lately been made to the science and practice of preventive medicine, particularly the reports of the International Conference on sleeping sickness [1] and on the radiological treatment of cancer of the uterus.[2] To these should be added a comprehensive survey which has just appeared of the measures taken in different countries for the welfare of the blind. The rapporteur laid special stress on the progress of combined investigations into particular aspects of syphilis, malaria, and the causes of infantile mortality. The successive conferences on the first subject have focused national studies of the technique of serum reactions, and have undoubtedly led to greater accuracy and comparability of all the diagnostic tests employed for syphilis. A similar comparison of the efficacy of modern preparations in the treatment of this disease is now proceeding on a large international scale. The inquiries which have been pursued by the Malaria Commission, extended in the present year to India, have resulted in a series of authoritative reports which are doing much to determine the wise selection and economic application of different antimalarial measures according to the circumstances and resources of the countries affected. In the case of infantile mortality a standard pattern of inquiry has been set up which each country can adopt, and those countries which have already adopted it have found that it affords an invaluable guide and stimulus to national effort. Claims such as these made on behalf of the League's work are substantiated by the facts, and their recognition should be gratifying to the medical officers of our own Ministry of Health and other British technical representatives who have not only taken their share in the conferences and committees, but themselves have provided a very essential part of the material and research which has made these several investigations fruitful. In the debate in the Second Committee some delegates advocated the still greater increase of investigations of this kind—for example, the institution of an intensive world study of influenza—while others hinted at the danger of the Health Organisation trying to do too much without a more systematic programme. Both contentions have force, but provided the inquiries are well thought out by the responsible body, the Health Committee, before they are put in hand, and the principle is followed that there should be only one quality of work—the best—their increase should be universally welcomed.

At the Assembly the public health work of the League has now come to make an exceptional appeal on the ground of the universality of its application. While disarmament, tariffs, and opium control affect some nations vitally but leave others indifferent, there is no country in the League which cannot benefit by consultation on one or other of its health problems. In some instances it is evident that these are political and administrative rather than purely technical. The recent application of Greece to the League for a Commission to advise on the reorganisation of its sanitary services is an instance in point. This Commission, of which Sir GEORGE BUCHANAN was the British member, laid down a scheme which the Prime Minister of Greece informed the Assembly that his Government has already adopted. In pursuance of it the services of one of the principal medical officers of the League, Dr. NORMAN WHITE, have now been lent to the Greek Government, while Mr. VENIZELOS himself, in order to further the scheme, has added the portfolio of a Minister of Health to his other offices. The League has just received a similar request from Bolivia for advice on the organisation of its health administration; while much attention was attracted at the Assembly to communications received from the Government of Nankin, as a result of which the medical director, Dr. L. RAJCHMAN, with other members of the secretariat, will almost immediately visit China and the Chinese ports. The Assembly indicated its satisfaction with the principle of these requests by voting a special credit for the purpose, additional to the normal public health budget and to the income furnished by the Rockefeller Foundation. From the point of view of hygiene, as well as of its effect in extending the influence of the League of Nations, the results of these new and highly responsible undertakings will be followed with attention and interest.

[1] League of Nations Health Organisation Report, C.H. 743. Report of the Second International Conference on Sleeping-Sickness, Paris, November, 1928.

[2] Ibid., C.H. 788. Reports submitted by the Radiological Sub-Commission, Geneva, June, 1929.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE Board of Trade has approved the scheme submitted for its approval last March, and on Sept. 13th the incorporation of the British College of Obstetricians and Gynæcologists was completed and with it the inauguration of a movement for the advance of the twin sciences of obstetrics and gynæcology which should turn to great good. Chief among its objects is the design to increase the prestige of this branch of medicine, to provide a better training and a severer test for medical students in these subjects, along with fuller opportunities for learning them. In giving our support to the movement in the spring we pointed out then what compelling force was given to it by the continuance of the high rate of mortality in childbirth. We recognised in passing the validity of the practitioner's plea that it is economically impossible for him to follow out the rules which his teachers impress upon him for the conduct of labour. These are evils whose roots go deep into social problems, but the work of the new College should be helpful in their solution. Following on the incorporation of the College the first meeting of the Council was held in London on Sept. 25th, when Prof. W. BLAIR BELL (Liverpool) presided and the following were elected members of the first general Council. For London: Dame Louise McIlroy, Dr. T. Watts Eden, Dr. J. S. Fairbairn, and Mr. L. C. Rivett. For the Provinces: Prof. A. Donald (Manchester), Sir Ewen Maclean (Cardiff), Prof. Carlton Oldfield (Leeds), Prof. M. H. Phillips (Sheffield), Prof. Beckwith Whitehouse (Birmingham), Dr. Farquhar Murray (Newcastle), and Dr. Leyland Robinson (Liverpool). For Scotland: Prof. R. W. Johnstone (Edinburgh), Prof. Munro Kerr (Glasgow), Dr. W. F. T. Haultain (Edinburgh), and Dr. R. A. Lennie (Glasgow). For Ireland: Prof. C. G. Lowry (Belfast), Dr. Bethel Solomons (Dublin), and Dr. T. M. Healy (Dublin). Under Article 40 of the Constitution the following were coöpted on the Council for the purpose of organisation—

viz., Prof. R. J. Johnstone (Belfast) and Dr. Eardley Holland (London). Proceeding to the election of officers, Prof. Blair Bell was chosen president, Prof. Munro Kerr vice-president, Dr. Comyns Berkeley (London) treasurer, Prof. W. Fletcher Shaw (Manchester) and Dr. H. Russell Andrews (London) secretaries. Sir Francis Champneys was appointed vice-patron of the College in recognition of his service to obstetrics and gynæcology, and especially to the College during the process of its formation. Finally, the following were elected members of the Executive Committee—viz., Prof. Blair Bell, Dr. Comyns Berkeley, Prof. Munro Kerr, Mr. Rivett, and Prof. Fletcher Shaw.

Annotations.

"Ne quid nimis."

MEDICAL DEFENCE.

THE tendency of recent years to add more and more scientific tests and standards to the practice of medicine has had at least one real disadvantage to the medical profession. It has made it increasingly difficult to get patients to appreciate the fact that medicine can never be an exact science. They are every year more apt to judge the results of treatment by an arbitrary and sometimes grotesque standard, usually infused by natural but undue optimism. If the standard is not reached they promptly blame the doctor, and woe betide him if he has omitted to call in the aid of any modern scientific measure applicable to the case. The absolute necessity of a precautionary X ray in any case of injury which might conceivably involve fracture has been urged again and again, yet Sir Herbert Waterhouse, in his presidential address at the annual general meeting of the Medical Defence Union on Thursday of last week, had to report once more that most of the cases causing his Union anxiety had been those involving failure to advise radiography. "Unless we are in a position to prove," he observes, "that such advice has been given, the defence of our member becomes a matter of great difficulty or even impossible." There are, however, other risks attendant upon the practice of medicine. As the solicitors, Messrs. Hempson, point out in their report, there is the unscrupulous type of person who thinks that he may escape payment if he only voices his dissatisfaction loudly enough and threatens to charge a professional man with negligence. Against such there is no immunity, either in consulting work or in the public health service. There is also the possibility in public health or other whole-time employment of disputes with employers or complaints by ratepayers or other members of the public. The risk is certainly in the minds of a growing proportion of the profession, and we are glad to learn that the membership of the Medical Defence Union now stands at 15,945 and that its financial position has never been better. Its work covers a very wide range of service to medical men and women; defence against action plays a relatively small part. The counsel of experienced advisers can often avert proceedings, and prompt attack may be the best form of defence. The Union may be said to handle every variety of difficulty connected with the practice of medicine. Perhaps the most outstanding case of the year was that, reported in our columns at the time,[1] in which a medical man was held liable for the hire of a car ordered by him for the transport of a patient. This was one of the two cases in which the Union suffered defeat, and at any rate should do service to the profession by calling attention to the importance of disclaiming personal liability when giving an order on behalf of a patient. In the other case the failure was due to the injudicious conduct of the member after action had been threatened; this illustrates again the importance of consulting the Union early and of abiding faithfully by its advice throughout. Another feature of the year's work was the action taken to maintain the professional standard by referring to the General Medical Council the conduct of certain registered practitioners. In every case the Council found the charge proved, and in one case ordered the removal of the name from the Register. More cases than usual have been settled out of court because the Union had no hope of successful action. There were nine of these cases: two involved the loss or partial loss of the sight of one eye, one owing to instillation of the wrong drops and the other to leakage of anæsthetic; three were cases in which a swab or instrument had been left in the body at operation; one patient had been burned during treatment by diathermy; in two cases there were obviously mistaken diagnoses under circumstances in which it might have been difficult to prove that reasonable skill and care had been exercised, and in the ninth case the practitioner had been carried away by sympathy for relatives and had signed an urgency certificate without actually examining the patient. The policy of the Union, however, is strongly opposed to the settlement of claims out of court, and every possible avenue of defence is thoroughly explored before compromise is admitted. In the last 15 years 1641 cases have been handed over to the solicitors by the Council of the Union and the total cost of subsequent litigation was £14,676. In the 63 heaviest cases the average cost per member was about £381. It seems almost incredible that there are still thousands of practitioners who are unwilling to pay £1 a year or a life sum of £25 to insure against this risk. In the words of the solicitors: "It is no exaggeration to say that no medical man is free from this risk, and that every case he attends is a source of possible danger . . . however small the risk the results may be disastrous and peace of mind is cheap at £1 a year." Membership of one of the defence societies is the only way of securing it.

[1] THE LANCET, 1928, ii., 1145, and 1929, i., 1258.

FLUKE INFECTIONS OF MAN'S BILIARY PASSAGES.

DURING the past year some significant observations have been made in Russia on infection by flukes of the bile-ducts and gall-bladder of man. P. Sdrudowski, of Baku, on the Caspian Sea, and his assistant, F. Jaguboff, have reported that, in fæcal examination of 900 persons, ova of liver-dwelling flukes were found four times—those of *Fasciola hepatica* and those of *Dicrocœlium lanceatum* each being noted twice. All four patients had such hepatic symptoms as jaundice and a large and tender liver. K. Plavtov, of Nakhi-Chevan, at the head of the Sea of Azov, reports on a herdsman who passed eggs of *F. hepatica* without symptoms, and on eight other persons passing those of *D. lanceatum*, of whom one at least was ill with an intense anæmia, but without anything to point to the liver as a seat of infection. Again, N. Karibow, of Tiflis, saw two boys of about 11, from different Georgian provinces, of whom one was without symptoms and the other suffered from biliary colic, while in both the eggs of *F. hepatica* could always be found not only in the fæces but by duodenal catheter. Since in most of these cases where fluke's eggs were discovered symptoms of hepatic disturbance were present, there is little doubt that true parasitism existed. That this need not be so is evident from observations by S. M. Koulaguine,[1] who was struck by finding that of 40 persons in whose fæces he found eggs of these parasites, 38 seemed perfectly healthy. He suspected, therefore, that the trematode eggs which he had seen had been swallowed with food, and he was indeed able to observe instances in which a meal of boiled liver infected by these two flukes resulted in the evacuation of their eggs in the fæces over the next three or four days. He confirmed this observation on his own person, having first satisfied himself that he was free from

[1] Russian Jour. Trop. Med., 1929, vii., 131.

the infections. Even when liver was boiled, roasted, or baked the eggs appeared to be unaltered, and it may be concluded that with imperfect cooking eggs may be passed alive in the fæces of the man who has swallowed them. It is clear, then, that when hepatic symptoms are absent a diagnosis of infection by these flukes, based on the finding of their eggs in the fæces, may well be a mistake. They should be sought for repeatedly by duodenal catheter, unless the ingestion of infected liver can be completely excluded. This observation should bring about a careful scrutiny of cases of supposed infection by these occasional parasites of man.

PERCEPTION OF MOVEMENT.

IT is supposed by some that the perception of moving objects, together with a crude light sense, represents a primitive type of vision, in some respects differing from the vision of stationary objects. In order to throw light on the problem some experiments have been carried out [1] by Mr. Myer Salaman, M.A., on the vision respectively of moving and stationary objects in the periphery of the visual field. The first experiment was planned with the object of discovering whether, when a moving object is observed peripherally, a perception of discontinuous change of position is ever obtained without perception of movement. An apparatus was employed by means of which the speed of a horizontally moving object and its angle of eccentricity could be exactly regulated, and numerous reports were obtained from six trained observers. All observers complained of the extreme vagueness of the perceptions, but the majority agreed in reporting change of position of the spots at eccentric angles at which no movement was perceived. This applies most decidedly to slow movement of under 0·2 of visual angle per second. When the rate of movement was more rapid it was, of course, more easily perceived. A second experiment had for its object to discover whether discontinuous change of position of an object, observed peripherally, is ever perceived as movement. In this experiment half of the observers never obtained any illusory perception of movement at all. Of the rest the only ones who gave any but negative results were those who had knowledge of previous work on the subject and of the nature and purpose of the experiment. The conclusion suggested is that the illusory perception of movement was in these cases subjective and psychological, not the outcome of any physiological process connected with the retina. The author is far too cautious to deny what others have maintained—that there may be a special physical basis for the visual perception of movement, but at any rate he shows that no conclusions can be drawn from experiments on the subject in which the psychological factors are ignored.

THE DOSAGE OF INTRAVENOUS GLUCOSE.

THOUGH intravenous glucose is recognised as a serviceable agent in conditions of exhaustion, toxæmia, or dehydration and is widely used, dosage and general technique are apt to be rather casually determined. Dr. P. Titus and Mr. H. D. Lightbody, working in the Department of Obstetrics and Gynæcology of the St. Margaret Memorial Hospital at Pittsburgh, set themselves to ascertain the quantity, concentration, and rate of injection of glucose which would yield the best results. They were chiefly concerned with the toxæmias of pregnancy and sundry gynæcological conditions, but their conclusions[2] have wide medical and surgical applications. They plead at the outset for as much care in calculating the dose and in controlling the administration of intravenous glucose as is used in the giving of any potent agent. They attribute clinical failure and "reactions" to faulty technique or dosage, and remark that ill-effects would certainly be observed if in morphine therapy the dosage was casually arrived at anywhere between grs. 5 and one-hundredth of a grain. To establish their data the authors seized on the cardinal fact that intravenous glucose causes a rise in blood-sugar up to a certain point, with a subsequent sharp and inevitable fall. This fall is, of course, of the highest importance, since hypoglycæmia is probably the cause of the convulsive reactions reported from time to time. It is almost certainly due, according to the charts presented, to an over-stimulation of the pancreas by the excess glucose and an over-production of endogenous insulin. Proceeding along clinical experimental lines the authors tackled separately the three problems of quantity, concentration, and rate of injection. The first consideration is the therapeutic dose. As a general rule probably too little is given. Indeed underdosage, combined with a too rapid rate of injection, may well account for the disrepute into which glucose falls from time to time. On the other hand, overdosage will lead, as has already been stated, to a paradoxical hypoglycæmia with the possibility of convulsions. It seems that the best quantity for an average sick adult is 75 g. The concentration of the solution should be decided upon after a review of the clinical condition. For example, in pneumonia when the patient has a weakened heart muscle, strongly hypertonic solutions should be chosen, so as not to overload or strain the right ventricle; while in a case of dehydration from vomiting and diarrhœa a weaker hypertonic solution is preferred. It will surprise many English readers to learn that 50 per cent. is recommended for the stronger, 10 per cent. for the weaker solution. For the rate of injection the authors fall back on the determinations of R. M. Wilder and W. D. Sansum,[3] who concluded that the rate should not exceed 0·8 g. of glucose per kilo of body-weight per hour. This is very much slower than the rate used in many hospitals and the disadvantages of rapid injection should therefore be emphasised. A certain sequel is the immediate loss of the substance by heightened urinary excretion before it has had time to act; a probable sequel is an over-stimulation of the pancreas, leading to endogenous over-production of insulin similar to that following overdosage. According to Dr. Titus and Mr. Lightbody, a basis for the administration of glucose to adults should be 75 g. of glucose in 300 c.cm. of water given over a total period of one and a half hours. The injection need not be continous but may usefully be given by instalments throughout the day. In children proportionately smaller quantities of sugar should be given but the time of injection should not be reduced.

CHANGES IN LOCAL GOVERNMENT.

THE end of September saw the expiration of the period allowed to the county councils and county borough councils for the formulation of their plans for taking over the public health and administrative work of the boards of guardians. On the last day of March next those bodies will automatically be dissolved and their successors will receive a large addition of dignity and importance, tempered by the obligation to perform extensive and often complicated functions familiar, in most instances, to a minority only of their members. So great a change in our system of local government entails careful and minute arrangements for smooth working, but in the main they must necessarily bear a family likeness. To what extent they differ it is impossible to say, since many scores of schemes have had to be prepared. The general outlines are, however, familiar. From April 1st the councils of counties and county boroughs—that is to say, all the great towns, and some that are not so great—will be responsible for poor-law finance, indoor and outdoor relief, and the maintenance of poor-law institutions, so long known as workhouses and poor-law infirmaries.

This is a heavy load of work to place upon the shoulders of authorities which grow busier every year.

[1] Medical Research Council. Some Experiments on Peripheral Vision. By Myer Salaman. H.M. Stationery Office. 1929. Pp. 47. 2s. 6d.

[2] Amer. Jour. Obst. and Gyn., August, 1929, p. 208.

[3] Arch. Int. Med., 1917, xix., 311.

but the Local Government Act of 1929 provides for it to be met by delegation. Even as the councils appointed education committees when they took over the functions of the school boards, so will they now appoint public assistance committees that will absorb the paid officials of the guardians. These bodies will have the general supervision of all poor-law work, subject, of course, as the education committees are, in matters of principle, to the approval of the councils. The composition of these committees is of great practical importance. They may consist only of elected councillors, and in some places that course has been followed, or they may include coöpted persons to the extent of not more than one-third, some of whom must be women. The borough public assistance committees may and, as a rule no doubt will, appoint subcommittees consisting mainly of elected councillors, but here again, if outsiders are coöpted, women must be among them. In the counties subcommittee are compulsory, for the obvious reason that it is impossible to administer relief from a single centre. These guardians' committees will do work for which local knowledge is necessary, such as interviewing and investigations. They will consist of members of the subsidiary councils, in the area, nominated by those councils, members of the county council representing the area, and male and female coöpted members—this is compulsory—to the extent of not more than one-third. The inclusion in this category of as large a number as possible of the old guardians and others with poor-law experience is very necessary, and even where elected councillors only have been chosen it is probable that some of them are, or have been, members of boards of guardians.

It is probable that, in most instances, the difficult and complicated question of the most effective means of coöperation between the poor-law hospitals and the voluntary hospitals has, as yet, been settled only in broad outline, even if so much has been done. The details of such coöperation are necessarily intricate, and whatever is arranged must needs be subject to the test of experience. The primary object must be to prevent waste and overlapping, and that crowding of one institution while a neighbouring one has beds to spare which has been so serious a weakness of the old system. Not less important will it be to create something like a uniform standard of efficiency, which was virtually impossible so long as we had two hospital systems existing side by side, one of which was, so to speak, under a cloud. From the point of view of the public health the councils have a great opportunity and, with goodwill on both sides, the voluntary hospitals ought to be the stronger for the adoption of rationalisation in quite a new sphere.

ANAEROBIC TOXÆMIA IN ACUTE OBSTRUCTION.

MICRO-ORGANISMS, like people, have their phases of popularity. The bacillus of gas gangrene, for instance, was long regarded as of no significance except in foul wounds, but M. Weinberg,[1] in France, followed by B. W. Williams [2] in this country, has endeavoured to establish its importance in acute intestinal conditions, and in America it is being advanced as a cause of pernicious anæmia. As regards its action in obstruction of the intestine and acute peritonitis, Weinberg has urged that it produces an infection, and Williams that it forms toxins which are absorbed. In a case lately published by J. Sailer, G. M. Laws, and J. Eiman [3] the afebrile collapse of a woman patient after appendicectomy suggested to the authors the toxæmia of "gas gangrene." On her death *B. welchii* was found in the small intestine and proved lethal to rabbits. The reporters of this case apparently believe it to be unique, but it is of the type described again and again by Weinberg and Williams. The whole theory of the absorption of this toxin from the gut in acute obstruction has lately been traversed, however, by A. W. Oughterson and J. H. Powers,[4] who have repeated Williams's experiments on a much larger scale. Eleven dogs were given acute obstruction and the contents of their small intestines were filtered and injected into the peritoneal cavity of mice. An equal number of mice received the filtered intestinal contents plus a *B. welchii* antitoxin of established quality, and the results seemed to be quite arbitrary. Few mice died, protected or unprotected; in many cases more protected mice died than unprotected. A second series of dogs were then given acute obstruction and the intestinal contents were this time injected into rabbits. It was hoped to find evidence of anti-hæmolysin to *B. welchii* hæmolysin, if it was present, and as a control a sample of known *B. welchii* toxin was similarly injected. The results were negative, however, save in the control rabbit. Lastly, cats were given acute obstruction, and it was found that no relief of symptoms was afforded in the group to which antitoxin was given. The usefulness of the antitoxin treatment of acute obstruction in practice has been emphasised by many writers, including J. O. Bower and J. Clark,[5] but the original theory of intestinal absorption requires confirmation before it can be held to be established. The therapeutic value of the method has not so far been denied in any publication, but the theoretical basis of the method, already resting on two contradictory arguments, is decidedly uncertain.

[1] Ann. de l'Inst. Pasteur, 1928, xlii., 1167.
[2] Brit. Jour. Surg., 1926, xiv., 295; THE LANCET, 1927, i., 907.
[3] Amer. Jour. Med. Sci., 1929, clxxviii., 309.
[4] Cushing Birthday Volume, 1929, p. 1085.
[5] Amer. Jour. Med. Sci., 1928, clxxvi., 97.

THE RIPENING OF BEEF.

IT is estimated that those English butchers who supply the wealthier classes sell only 25 per cent. of a beef carcass for roasting purposes, the remainder being destined for stewing, boiling, or pickling. In industrial districts over 54 per cent. of the carcass is sold for roasting, the cheaper and usually tougher joints, such as silverside, topside, aitchbone, and middle ribs, being disposed of for this purpose as well as the sirloin and fore-ribs. It is obviously desirable that the palatability of the cheaper joints should be raised to as high a standard as possible. With this end in view the Department of Scientific and Industrial Research recently undertook an investigation on the effect of hanging, or conditioning, upon the palatability of meat, and their report on the subject has just been issued.[6] The investigation consisted essentially in a comparison of the palatability of samples of hot and cold roast beef derived from carcasses which had been stored at suitable temperatures for varying lengths of time. The palatability was assessed by teams of experts who allotted marks to each sample for such qualities as tenderness, flavour, texture, juiciness, and colour. Joints from one-half of each carcass were cooked and tasted three days after the slaughter of the animal; the other half of the carcass was stored at a temperature of 41° F. for a further 4 or 14 days, after which interval corresponding joints from this half were similarly cooked and tasted. In almost every case there was a marked progressive improvement in the palatability of the samples with the increase in the period of storage, due mainly to an increase in tenderness. The increase in tenderness was more pronounced with the coarser joints than with those of the first quality, and was sufficiently constant and striking to lead the authors of the report to suggest a scheme for the conditioning of beef at central depôts such as municipal abattoirs. Under such a scheme the dressed carcasses would be cooled for one to two days at a temperature of 31–33° F. (short of actual freezing) and then stored for 10 to 12 days at a temperature of 36–38° F. Before removal to the retail shops, or at least before being cut up into joints, the carcasses should be stored for about 24 hours at ordinary temperature, or in summer at

[6] Food Investigation, Special Report, No. 36. Post-mortem Changes in Animal Tissues: the Conditioning or Ripening of Beef. H.M. Stationery Office. 1929. Pp. 64. 2s.

some controlled temperature round about 40–45° F. The possible objections to a procedure of this kind, such as increased liability to putrefaction and diminished attractiveness of the joints by loss of bloom and sweating of the surface, are shown to be without foundation, providing due attention is paid to the temperature and degree of humidity of the storage chambers. Now that it has been proved that beef, and especially the cheaper cuts, can be rendered more palatable by the process of ripening or conditioning, what chance is there that this process will be applied generally to the meat prepared in this country? The first and most important step in this direction is the creation among the public of an appreciation of conditioned meat and a demand for it. In the opinion of the writers of the report the coöperative societies have unique opportunities for educating the public in this matter, for in the majority of cases they already possess, or contemplate the erection of, abattoirs fitted with cold storage accommodation where the conditioning could be carried out. Every member of the meat-eating population who is informed of the facts could help to create the necessary demand by reiterated requests to his own butcher for the supply of conditioned meat.

THE RADIUM COMMISSION.

IT is now six weeks since the Radium Commission was appointed, and although the holiday season has intervened good progress has been made with work preparatory to the important matter of distribution. It is unlikely that more than three grammes of radium will be available in suitable containers before the end of the year, and it will task the National Physical Laboratory at Teddington, to which the supplies are to be consigned for safe keeping, to test and measure this quantity. In addition it is hoped that a loan of four grammes in the form of a so-called bomb may be available on loan from the manufacturers, in the same way as the Haut-Katanga Mining Company has for a long time past loaned to the Institut du Radium and other research centres in Paris a large quantity of the radium element at its disposal. No decision has yet been taken as to the particular institutions to which the radium will be distributed, although it has been agreed in principle to give preference to centres where treatment is combined with teaching and research. The Commission will, of course, require detailed and uniform records to be kept of the use to which the radium is put, especially as the loans will be made on terms which will simply recoup the Commission for the expenses incurred. Prof. Sidney Russ, D.Sc., has been appointed scientific secretary to the Commission, the offices of which are at 5, Adelphi-terrace, London, W.C. 2, where communications should be addressed to the secretary.

THE SEQUELS OF TOXÆMIC PREGNANCY.

IT used to be said at one time that there is no great risk of permanent damage after a toxæmic pregnancy, and as recently as 1924 Whitridge Williams in his book, "Obstetrics," stated that one attack of eclampsia confers immunity against further attacks in subsequent pregnancies. Among writers who have lately contradicted this is C. H. Peckham,[1] who found that 23 per cent. of 77 cases of eclampsia treated at the Johns Hopkins Hospital had chronic nephritis when examined a year later. Equally remarkable figures have been brought forward by James Young [2] in Edinburgh and by G. F. Gibberd [3] at Guy's Hospital. Young found that more than half the pregnancies which followed a toxæmic pregnancy were pathological, but noted that the incidence of chronic nephritis after a toxæmic pregnancy was low—namely, 3 per cent. after eclampsia and 8 per cent. after albuminuria. He rejects the common view that there is a definite type of toxæmia, sometimes called the nephritic type, and he thinks that all types of late pregnancy toxæmia may be recurrent. Dr. Jessie Sym in our present issue records a further investigation of the series of cases that Young examined, and gives some more statistical details. These show that the danger of subsequent toxæmic pregnancy is considerably greater after "albuminuria of pregnancy" than after eclampsia; thus she finds that 27 per cent. of subsequent pregnancies after eclampsia are toxæmic and 49 per cent. after albuminuria—not to mention many others in which abortion takes place in the early months. Twenty-five of the women in Peckham's series were under observation in their next pregnancies and 14 (56 per cent.) of these proved pathological. Gibberd regards all first attacks of albuminuria in previously healthy patients as due to a primary toxæmia, any renal insufficiency being purely secondary. In estimating the fate of ten such patients he says that one will suffer so much damage to the kidneys that she will develop a frank chronic nephritis, whilst four will recover their renal function completely and afterwards have normal pregnancies. The remaining five—i.e., half those who originally had toxæmia—will, he thinks, have a recurrence of albuminuria fairly consistently with all subsequent pregnancies. Although their kidneys are not obviously damaged they have nevertheless a permanent occult nephritis and will show signs of insufficiency when put to the strain of pregnancy—"the most delicate test of renal function that we possess." It has been shown that the length of time the initial toxæmia lasts is of considerable importance in deciding whether occult nephritis will follow, and although, as Gibberd rightly points out, "this is not the whole question," it is reasonable to conclude that signs of toxæmia during pregnancy should be treated energetically without delay. Failure to react to treatment is an indication for ending the pregnancy, whilst in future pregnancies the prognosis must obviously be guarded and careful watching of the patient will be required.

A CHAPTER IN PUBLIC HEALTH.

Dr. Philip Boobbyer's retirement after 40 years of strenuous work for the citizens of Nottingham is a noteworthy event in the history of British public health. The first half of his tenure of office belongs to the period when sanitation was chiefly environmental and directed towards improved conditions of life for the community as a whole. The report, which he has just issued, deals with the last 13 years during which the measures for the benefit of individual health have taken form. The original maternity and child welfare centre was established in Nottingham early in 1908 by voluntary agency with material assistance from the municipality, and was second only to the St. Pancras centre opened in the previous autumn. Here, as elsewhere, the voluntary scheme assumed official status, and now nearly 50 per cent. of the children born in the city come into touch with the welfare centres and about 10 per cent. of the expectant mothers attend the antenatal clinics. Dr. Boobbyer pays a tribute to the midwives who attend 70 per cent. of the births, and notes the fact that the civic authority does not yet provide or subsidise maternity hospitals. Since 1921, however, no baby has been totally blinded by ophthalmia neonatorum, although 12 cases of impaired vision from this cause have been reported. Antituberculosis work began in Nottingham with the provision of beds at the isolation hospital in 1903 and culminated in the establishment of a tuberculosis dispensary and the appointment of a tuberculosis officer in 1913. The mortality from tuberculosis in the city has fallen by nearly one-half during the last 50 years, the drop being continuous except for the war years, when the setback was chiefly among adult females. In 1928 the deaths from tuberculosis numbered only 0·5 per cent. of the total deaths, and existing institutional accommodation may be regarded as adequate except for advanced cases. Dr. Boobbyer considers that the venereal disease scheme has reduced the prevalence of syphilis in Nottingham by more

[1] Bull. Johns Hopkins Hosp., September, 1929, p. 176.
[2] Brit. Med. Jour., 1929, i., 91. [3] Ibid., p. 674.

than 52 per cent. but he attributes the lesser grade of success with gonorrhœa to the growing laxity of public morals and the lack of a specific remedy. Since the war the Nottingham Corporation have built or ordered 7000 houses and cleared or adopted schemes for the clearance of nearly 28 acres of slum property. From 1868 to 1912 Nottingham was a pail-closet town; in April, 1912, it was decided to adopt water-carriage, and by the end of 1923 all the 40,000 pail-closets had been converted. The water-supply, which used to be entirely from deep wells and borings in the Bunter sandstone, with a total hardness of 18·4 degrees, has been supplemented to the extent of 33 per cent. by a soft moorland supply from the head waters of the Derwent. The new sewerage, when completed, will render Nottingham one of the best-drained cities in the country; a public abattoir and a crematorium are in prospect. Dr. Boobbyer describes the special activities of the war years; how the comparative freedom of the civil population from infectious diseases enabled much hospital accommodation to be put at the disposal of the War Office; the provision of war creches for the children of munition workers, and temporary expedients such as delousing stations and a venereal diseases prophylactic centre for the allied troops. The outbreak of mild small-pox in 1921–22, 113 cases with no deaths, is attributed to the visit of seven Mormon missionaries from Utah. Nottingham has been less severely attacked than many towns by encephalitis lethargica; 74 cases with 27 deaths occurred in 1924–26. Only two cases of post-vaccinal encephalitis have come to Dr. Boobbyer's knowledge since 1920. The survey should interest both Nottingham citizens and others.

BLOOD-PLATELETS IN WERLHOF'S DISEASE.

THE conception of the "morbus maculosus of Werlhof" as an essential thrombopenia has attracted a great deal of attention since it was introduced some years ago by Frank, and has largely influenced the treatment of hæmorrhagic states. The suggestion is that the basis of this particular manifestation of the hæmorrhagic diathesis is a shortage of platelets, either acute or chronic. It was as a result of the observation that splenectomy, both in man and animals, is followed by an increase of the platelets that Kaznelson recommended and practised the surgical removal of the spleen in this condition, and many cases are now on record in which this operation has been followed by the happiest results, though in others it has been a failure. Faith in the theory on which the operation is proposed has been somewhat shaken, however, by the observation that even in cases in which hæmorrhages cease after splenectomy the platelet count, after an initial rise, often returns to its original low level. The whole question has recently been reconsidered by Prof. Roskam, of Liége, who records[1] cases clinically characteristic of Werlhof's disease in which there was no diminution of the platelets, and on the strength of this observation calls into question the whole of Frank's conception of the pathology of the disease. Roskam draws attention to the frequent presence of the "brassard" sign—namely, the occurrence of petechial hæmorrhages after constriction of the arm by the brassard of a sphygmomanometer at a pressure between the systolic and diastolic. This he regards as evidence of capillary damage, and he points out that the amount of hæmorrhage produced in this way may be different in the two arms, which suggests that one portion of the body may be more affected than another. Eventually he comes to the conclusion that Werlhof's disease is more correctly regarded as a disease of the vessels than of the blood itself. That there may be concomitant thrombopenia he does not deny, but he looks on it as secondary to the vascular lesion and not as causative of the hæmorrhages. No attempt is made in this paper to explain the beneficial results of splenectomy in certain cases. It is evident on present knowledge, however, that the original hypothesis of Frank cannot be retained in its entirety, and that the whole question of the hæmorrhagic diathesis and the rôle of the platelets in its causation is very far from being settled.

[1] Le Sang, 1929, iii., No. 5.

THE BALANCE BETWEEN MALARIA AND THE VENEREAL DISEASES.

IF there was ever a time when malaria was of interest to practitioners in the tropics only, that time passed when Wagner-Jauregg began to use it purposefully in the treatment of late syphilis. And now it appears that the interest extends to another venereal disease. When Dr. Max Rosenburg first reached Acre he was surprised to find, he tells us,[1] that some cases of gonorrhœa in Palestine cleared up much more quickly than others. These short cases had, he found, been through a malarial infection, and the association was so constant that it could be used in forming an opinion of probable progress. Perhaps, he suggested, the high temperature of malarial pyrexia weakens the gonococcus, and it may be recalled that John Hunter a century ago noted in his Treatise on the Blood "the suspension or cure of a gonorrhœa by fevers." Spiethof, Leuzman, and Hofmann are quoted by Rosenburg as having in the last five years used artificial malarial infection in the "thoroughly successful" treatment of gonorrhœa in the adult female, and we are familiar in this country with the treatment of such infections of the uterus by the local application of heat. It would be of interest in the first instance to obtain reports from other practitioners in tropical countries. The average length of time spent in hospital by cases of military gonorrhœa is 55·7 days at home, 51·33 days in India, and in West Africa, where the malarial incidence is heaviest, only 46·7 days. These figures might be looked into more closely in the light of Rosenburg's suggestion. He goes on to ask for an explanation of the increasing prevalence in the tropics of neurosyphilis in towns, but not in the villages. He questions the validity of the reasons currently given—viz., over-dosage of salvarsan by native physicians, negative phase and lesser immunity in town dwellers; and a lowering of tone by cocaine, alcohol, and the like, in townsmen newly come from the villages. Here again he regards as significant the greater prevalence of malaria in the villages, where probably 70 per cent. of the inhabitants are infected, while in the towns the proportion falls as drainage and preventive measures advance. Should his view prove correct the future will have in store a great increase in neurosyphilis among the peoples of Asia and Africa as they drift townward.

[1] Arch. für Schiffs-u. Tropen-Hygiene, September, 1929, p. 463.

THE annual Harveian commemoration will be held at the Royal College of Physicians of London on Friday, Oct. 18th, being St. Luke's Day, when Sir Wilmot Herringham will deliver the Oration at 4 P.M., to be followed in the evening by a "general feast" according to the instruction of William Harvey when he gave his patrimonial estate to the College.

ON Sept. 27th the eightieth birthday of the veteran physiologist, Prof. Ivan Pavlov, the Soviet Government, in honour of his work, assigned 100,000 roubles (£10,000) for the re-equipment of his laboratory in Leningrad. In thus recognising Prof. Pavlov's important services to medical science, the Government has disregarded his political views.

Summer Time, which commenced in Great Britain, Ireland, the Channel Islands, and the Isle of Man on April 21st, will cease on Sunday next, Oct. 6th, at 3 A.M., when the clock will be put back to 2 A.M. The hour 2–3 A.M. Summer time will thus be followed by the hour 2–3 A.M. Greenwich time. France and Belgium make the change at the same week-end. Thereafter travellers to the continent will not need to adjust their watches until they reach the German, Swiss, or Italian frontier.

The Clinical Interpretation of Aids to Diagnosis.

A Series of Special Articles contributed by Invitation.

XLVI.

THE MICROSCOPIC EXAMINATION OF FÆCES.

PART I.*—CYTOLOGY AND ANIMAL PARASITES.

WHEN a medical practitioner seeks the aid of a pathologist in elucidating a case by examining the fæces, there are certain conditions which must be fulfilled in order that the result may be of value. It is disappointing to the pathologist, who has spent time and material on the tests applied, to have to submit a negative report couched in some such terms as the following:—

"The specimen contained mucus, a few disintegrated pus cells and some degenerated epithelium; no protozoa or parasites were found, and no pathogenic organisms were recovered."

It is also disappointing to the clinician who receives the report; but, more important, it may be misleading if the result is negative only because the material sent for examination was unsuitable in character or arrived too long after collection, since quite a different report might have been received had the proper conditions been fulfilled. In this and the succeeding communication an endeavour will be made to show what material should be submitted for examination on different occasions, what results may be expected in the report, and what inferences may be drawn from these results, and applied to the management of the case.

Collection of Specimens.

The coöperation of clinician and pathologist is of such importance that a few words first on the selection of suitable specimens for examination are appropriate. To identify and estimate all the bacteria in a specimen of fæces, for instance, is a laborious process which may be undertaken for purposes of research or of training students in bacteriological technique, but the results would be of no practical value or application in the present state of our knowledge. There are certain routine investigations which the pathologist will make on each specimen submitted; but he has a right to expect an indication of the special features to be investigated. A short note of the clinical state and of the suspicions aroused in the mind of the medical attendant should accompany the specimen. The material sent to the laboratory should be as fresh as possible, since most of the parasitic organisms, both protozoal and bacterial, tend to die quickly when cooled to room temperature, and are readily overgrown by mere saprophytes. Further, as most of the bacteria in formed fæces are dead, it is preferable to work with a semi-solid or liquid stool. Liquid paraffin should be avoided, because the fæces containing it give messy preparations on microscopic slides, and the minute refractile oil globules are confusing when amœbæ or their cysts are being looked for. The best stool for the pathologist is the fresh liquid evacuation following a saline aperient. Recently passed mucus is the best material in which to find the entamœbæ of amœbic dysentery to be described later. Muco-pus obtained by direct vision of the lining of the bowel with a sigmoidoscope is a better material for examination, both for protozoa and pathogenic bacteria, than mucus passed with the fæces.

The fæces should be collected separately from the urine. The bladder should always be emptied before the stool is passed, in order that it may be free from urine. A chosen part of the motion should be submitted for examination, except where worms are suspected, when it is necessary to have a whole motion, so that the minute head of the tapeworm or ova may be searched for by concentration methods. In these cases the motion should be passed into a wide-mouthed jar or pickle-jar with screw-on top. A small amount of boiled water still warm may be put into the jar, which should then be securely fastened and properly labelled as mentioned below. In other cases a portion of the semi-solid stool and any pieces of mucus or muco-pus should be sent in a small sterile and tightly corked phial. Specimen bottles with metal or glass spoon for picking up suitable material are obtainable from the laboratories where the examinations are made. The label should contain the patient's name or an appropriate identification mark, the date, the time at which the motion was passed, a note of the examination required, and the doctor's name. No time should be lost in getting the specimen to the laboratory. If it is necessary to send it by post, a little sterile normal saline solution or 1 per cent. bicarbonate of soda may be added. The postal authorities require that it should be so packed that risk of breakage in transit is reduced to a minimum, and it must be labelled distinctly as pathological material. The packet, which should be marked "*fragile, with care*," should be sent by letter post, not by parcel post.

Cytology.

Small amounts of *mucus* in the fæces are common, and are not of pathological importance. A little mucus occurs on the surface of the motion in constipation, or mixed with diarrhœic stools, and is frequent in those of patients taking aperients. This mucus is uncoloured by bile and contains no cells; it is probably from the lower bowel. Larger quantities indicate irritation of the bowel, and masses forming strings or casts occur in *mucomembranous colitis*. At times these casts are several inches or more in length; the mucus is glassy-white or grey in colour, and contains some epithelial cells. Mucus from the large intestine is usually white or uncoloured; when it arises from the small bowel it is often bile-stained. *Sloughs* or mucus containing plaques of intestinal epithelium arise from necrosis in an ulcerated area and may be found characteristically in the stools of typhoid fever patients during the third and fourth weeks.

Muco-pus, leucocytes and pus cells mixed with mucus, may have been swallowed from the nasopharyngeal or bronchial tracts; when it arises from the bowel, it indicates an ulcerative condition of the colon, dysentery, chronic ulcerative colitis, or diverticulitis. The pus cells are usually degenerated.

Fresh pus in separate masses arises from the rectum or sigmoid, and may come from a fistula-in-ano, a proctitis of simple origin (e.g., from enemas) or a tuberculous, syphilitic, or gonorrhœal proctitis, or from an abscess which has burst into the lower bowel. In females the pus may have come from the vulva or vagina, and the possibility that a little bright blood or blood-stained mucus may become added to the motion during menstruation must be remembered.

Blood.—Bright blood-clot with intact blood corpuscles comes from rectum or anus, usually from hæmorrhoids; it is found streaking the surface of the motion or forms a little pool apart from it. Blood corpuscles mixed with mucus or muco-pus indicate an ulcerative lesion of the colon; the small motions produced with straining in dysentery and the summer diarrhœa of children may consist of little else than blood-stained muco-pus. In cancer of the colon the blood is often uniformly mixed with the mucus, forming a pink jelly, whilst in cases of ulcerative colitis the blood tends to lie on the surface of the mucus in little pools. When the blood comes from higher up in the bowel or has remained longer in it, it becomes changed, and may be recognised by

* Part II., on Bacteriology, will appear next week.

spectroscopic or chemical tests. The tarry stools following considerable hæmorrhage in the upper part of the alimentary tract are recognisable by the naked eye. The significance of blood in the fæces was dealt with in a previous article in this series (THE LANCET, 1928, ii., 1353), and the chemical changes of blood into acid hæmatin and hæmatoporphyrin were described. These substances are recognised with the spectroscope, and acid hæmatin in small quantities is also detectable chemically as "occult blood." The spectroscopic test is not delicate; the colour tests are very sensitive, but are given by other substances such as meat and green vegetables. With the chemical colour tests, therefore, a negative result is significant, with the spectroscope a positive is informative. With proper precautions, and when preceded for two or three days by a diet free from hæmoglobin and chlorophyll, a positive chemical test for occult blood shows that bleeding is taking place into the upper part of the alimentary tract. Search may reveal oozing gums, slight epistaxis, or blood-stained sputum, but usually the blood is coming from an ulcer, simple or malignant, in stomach or duodenum.

No clear inferences can be drawn from an attempt to differentiate the varieties of *epithelium* found in the stools. The casts of mucous colitis often contain some columnar epithelial cells and eosinophil leucocytes. In ulcerative colitis and dysentery degenerated columnar epithelium is found, also rounded or polygonal cells with a large, round easily seen nucleus from the deeper layers of the intestinal wall.

Parasites.

Tapeworms.—*Tænia solium* and *T. saginata* are the commonest forms, the latter occurring more frequently in these islands. The diagnosis is made by finding parts of the worm, often isolated segments, in the fæces, and the species of tapeworm is determined by the differences in structure. As the ova are not often passed free in the motions, a negative report does not exclude the presence of these worms. In the case of a third tapeworm, *Bothriocephalus*, not so common, however, the ova are abundant in the stools and a diagnosis is readily made. The procedure recommended is milk diet for a day or two, then an anthelmintic followed by a purgative. The motions should be passed into a vessel containing warm water, without straining if possible, the object being to secure the worm unbroken. The head, no bigger than a large pin's head, must be searched for carefully. If it is not found, a doubt remains as to the treatment having been effective, though the worm may have been killed and the head digested. But as the head, if left alive will grow again, treatment should be repeated in three months' time in case of doubt.

Roundworms.—Infection with *Ascaris lumbricoides* is often multiple. On finding a worm or ova in the fæces, treatment with santonin, oil of chenopodium, thymol, or calomel is carried out, and repeated later. In threadworms, *Oxyuris vermicularis*, the eggs in the rectal mucus already contain an embryo and auto-infection occurs. Anthelmintics should be used, combined with lavage of the bowel with hypertonic (20 per cent.) salt solution or 1 per cent. santonin. With these roundworms, as with *Trichuris trichiura* (*Trichocephalus dispar*), a common parasite, reinfection readily occurs through the fingers becoming contaminated by scratching and conveying the eggs to the mouth. Careful prophylaxis is necessary, by applying an antiseptic ointment (mercury or calomel) locally, and by suitable clothing to prevent contact of the fingers during restless sleep.

The *hookworm*, *Ankylostoma duodenale*, is a rare parasite in Great Britain. Its eggs are readily found and the infection calls for energetic treatment. Cases suspected of being ankylostomiasis must be notified to the Chief Inspector of Factories, Home Office, London, S.W.

Flatworms.—The ova of the liverfluke, *Distoma hepatica*, a rare infection occurring in sheep-breeding districts, and of bilharzial dysentery, *Schistosoma mansoni*, an introduced disease, may appear in the fæces. Treatment is indicated with preparations of tartar emetic by the mouth and intravenously, also in the latter disease, by bowel lavage.

Amœbæ.

Entamœba coli is a non-pathogenic inhabitant of the large intestine. In routine examination of fæces it has been found in up to 50 per cent. of patients in Europe, though in an ordinary civilian population in Great Britain it is much less common. During and immediately after the war it was more prevalent than nowadays. There may be mucus in the stools from irritation of the large bowel, but a report of muco-pus calls for further specimens of fresh stools in order that search may be made for the amœba of dysentery.

Entamœba histolytica, the amœba of dysentery, is a finding which must be taken up at once. The disease is notifiable, and calls for energetic treatment by amœbicides, emetine intravenously, tartar emetic and its derivatives, stovarsol or yatren by the mouth, or by intestinal lavage. Repeated examination may be necessary in some cases, but one positive finding by a pathologist experienced in this work is diagnostic. A report of dead or doubtful amœbæ should be followed up. The patient should take a saline aperient, and any mucus passed should be taken for examination at once, if necessary by special messenger, or preferably examined at the bedside. In a number of cases of subacute or chronic dysentery the diagnosis may thus be cleared up and appropriate treatment instituted. The amœbæ tend to occur in showers during exacerbations, and in the intervals cysts may be found in the more solid or partly formed stools. A report of *E. histolytica* cysts may be accepted in convalescents from dysentery and in the search for possible carriers, but it must be remembered that other amœbæ which are non-pathogenic have four-nucleated cysts resembling those of *E. histolytica*. The finding of such cysts is therefore not enough, and in doubtful cases it may be necessary to test their pathogenicity by infecting cats. Some of the figures showing a high incidence of dysenteric infection in England which were based upon finding these cysts, are therefore to be accepted with caution.

Infusoria.

Certain *flagellates* may be found in the stools. They are usually of no significance, but in some cases seem to set up irritation and to give rise to symptoms. *Trichomonas* may be found in patients who already have dysentery, and may sometimes itself set up a watery diarrhœa with colicky pains. Treatment by bowel lavage with ¼ per cent. silver nitrate solution relieves. *Giardia* (*Lamblia*) *intestinale* may be pathogenic in some 10 per cent. of the cases in which it is present, giving rise to an enterocolitis, diarrhœa with mucous stools containing blood. Bismuth salicylate or salol, thymol, santonin, or stovarsol may be used by the mouth; and intestinal lavage with 1 per cent. methylene-blue or ½ per cent. silver nitrate solution.

A ciliate, *Balantidium coli*, more common since the war, is sometimes associated with symptoms of chronic dysentery. It can be controlled by intestinal lavage with ¼–½ per cent. solution of quinine; or by thymol or stovarsol by the mouth. Mention may be made of a vegetable parasite frequently reported, *Blastocystis hominis*, which is now regarded as of no pathological significance; stovarsol is said to cause it to disappear. Patients with these infusorial infections are often found to have subacidity of the gastric juice and to respond favourably when weak hydrochloric acid is given by the mouth.

S. W. PATTERSON, M.D., D.Sc., M.R.C.P.,
Physician, Ruthin Castle.

Special Articles.

INTERNATIONAL PHYSIOLOGICAL CONGRESS.

THE MEETING AT BOSTON.

THE thirteenth International Physiological Congress met at Boston, Mass., under the presidency of Prof. W. H. HOWELL, of Johns Hopkins University, on August 19th. The American Physiological Society, with the Federation of American Societies for Experimental Biology, entertained the foreign members and their friends, and showed a lavish hospitality. The large meeting was organised with such forethought that though over 1600 members were enrolled from 42 nations, its progress was smooth in every detail, and expressions of admiration and gratitude were heard from all sides. Over 500 members attended from the Old World, and the journey afforded opportunities of forming new and cementing old friendships. Most of the British members travelled by ss. *Minnekahda*, on which boat physiologists from twenty-two countries were represented. During the ten days occupied in the voyage many contests in sport between national and international teams formed a happy prelude to the more serious contests of the scientific sessions in the Harvard Medical School.

The Progress of Physiology.

The opening meeting was held on Monday evening, August 19th, in Sanders Theatre, Memorial Hall, Cambridge, where addresses of welcome were given by Surgeon-General Hugh S. Cumming, of the United States Public Health Service, on behalf of his Government; by Lieutenant-GovernorWilliam S. Youngman, on behalf of the Commonwealth of Massachusetts; by President A. Lawrence Lowell on behalf of Harvard University; and by the President of the Congress. These were followed by an address entitled "The Progress of Physiology," by Prof. August Krogh, Director of the Zoophysiological Laboratory at the University of Copenhagen. After directing attention to the rapidity with which the science of physiology was expanding, an expanse which was largely due to an increasingly close contact with the allied and fundamental sciences, Prof. Krogh pointed out that the unwieldiness produced by this growth made it impossible for any single human being to be familiar with modern physiology in all its branches, in the sense in which the great teachers of twenty or more years ago were familiar with the physiology of their time. The splitting up of physiology into more or less separate and independent sciences was inevitable, and we were confronted with the problem of finding the right lines of cleavage. Physiology as a science had taken its origin from the necessities of practical medicine, but most of the work done in physiological laboratories had no direct relation to medicine. The line of development which Prof. Krogh advocated was the establishment in one direction of a branch of physiology more intimately in contact with practical medicine, and in the other direction a branch which was much more independent. The time had come when special chairs and laboratories should be established for the physiology of disease, morbid physiology, or experimental medicine, if that name be preferred. The leaders of such laboratories should have no regular duties connected with the treatment of patients, but they must have at their disposal a small number of beds for the temporary study of selected cases, and facilities for studying disease experimentally on animals. The other line of development advocated was the creation in the science schools and in close coöperation with the departments of zoology, of chairs and laboratories for comparative physiology, animal physiology, or zoophysiology. Prof. Krogh's criticism of much of the work done to-day was that too many experiments and observations were being made and published, and too little thought was bestowed upon them. Facts were, of course, necessary, but unless fertilised by ideas, correlated with other facts, and illuminated by thought, they were to be considered only as material for science.

Scientific communications and demonstrations were given on August 20th to 23rd, six sections running concurrently in the auditoria of the Harvard Medical School, the High School of Commerce, and the Peter Bent Brigham Hospital. The communications numbered over 450 and the demonstrations nearly 80. We may refer briefly to those which have a more immediate bearing on the problems of medicine.

New Work on the Alimentary Tract.

L. R. Dragstedt and J. C. Ellis showed that the severe alkalosis following œsophago-duodenal anastomosis with gastrostomy in dogs was unaccompanied by any signs of tetany. W. N. Boldyreff, working with fistulæ in dogs, observed a rapid fall in the red cell count following the absorption of acid from the gut. Repeated introductions of 0·5 per cent. HCl, or 1·25 per cent. lactic acid into the stomach caused in two to three weeks a drop in the erythrocytes of more than 1,000,000 per c.mm., with the appearance of pathological forms. Cessations of such introductions was accompanied by a return to a normal count in a few weeks' time. Excess of acid in the digestive tract was thus shown to be responsible for the advent of anæmia resembling an anæmia of the pernicious type. The results of interesting and important work on fat absorption were communicated by F. Verzár. It was shown that the reaction of the contents of the small intestine is such that the higher fatty acids cannot exist there in the form of soaps. The bile acids, however, combine in watery emulsion with the fatty acids, and the resulting combination dissolves clearly in water even at pH 6·5 and diffuses readily through parchment membrane. The combination is a molecular one, and an explanation is thus afforded of the absorption of the higher fatty acids under the physiological conditions obtaining in the small intestine.

The Kidney.

E. K. Marshall reported that fish such as the toadfish and goose-fish, whose kidneys were aglomerular, secreted urine of essentially the same composition as those provided with glomerular kidneys. The aglomerular kidney differs from the glomerular one in showing a specificity (similar to that exhibited by the salivary gland) in the elimination of substances not normally present in the urine. Thus phenol red is readily excreted in concentrated form by the aglomerular kidney, while sodium carminate and glucose are not excreted. All of these substances are eliminated by the glomerular kidney. The excretory function of the tubule would appear to be of a kind similar to that exhibited by secretory glands such as the liver, pancreas, and salivary glands. Studies in the composition of glomerular urine have been extended by A. N. Richards and his colleagues, who have now shown by means of quantitative analysis that the composition of this fluid approaches so nearly to that of an ultrafiltrate of the blood plasma as to leave very little doubt that the glomerulus is the seat of a process of filtration.

Dry heat as an effective means of increasing the elimination of urea and of chloride by the skin is recommended by F. N. Allen. This form of treatment can be used in suitable nephritic cases to produce four litres or more of perspiration daily, over long periods, and without prostration. Large reductions in the blood-urea may be brought about by this means—e.g., from 180 to 60 mg. per 100 c.cm.

Cardiovascular System.

C. Heymanns reported the results of experiments which were in close accord with the fundamental work of H. E. Hering, on the rôle of the sinus caroticus in the control of the general arterial pressure. By perfusion of the innervated sinus of one dog by means

of another, Heymanns was able to show that the bifurcation of the common carotid artery was the seat of receptors sensitive to changes in blood pressure, and the site of origin of impulses engaged in the reflex control of cardiac rate, of the arterial blood pressure, and of the secretion of adrenalin. All the cardiac, vasomotor, and adrenalin-secretory phenomena which had generally been attributed to a direct action of changes in blood pressure on the medullary centres were shown to be of a reflex nature.

W. Raab provided evidence that a hyperexcitability of the vasomotor centre to the CO_2 tension in the blood was to be regarded as a pathogenic factor in essential hypertension. The CO_2 tension in such cases was not greater than normal, but slow deep breathing was followed by a fall in the tension of this gas and in the blood pressure. Breathing a mixture consisting of 3 per cent. carbon dioxide and 97 per cent. oxygen produced a fall in neither, from which it was concluded that the fall in blood pressure encountered before was due to the accompanying fall in the CO_2 tension in the blood. The effect is absent in hypertension associated with nephritis.

Pharmacology.

C. H. W. Lucas and V. E. Henderson reported the results of a study of the anæsthetic properties of cyclopropane. This gas produced rapid anæsthesia in cats in a concentration of 11 per cent. in oxygen. No depression of the medullary centres was observed, but a fall in blood pressure occurred when the concentration of the gas was raised to 25–30 per cent. Animals were anæsthetised on three successive days, for periods of two hours without any toxic effects being manifested.

Sodium amytal has been used by L. G. Zerfas, H. A. Shonle, E. E. Swanson, and G. H. A. Clowes as an intravenous anæsthetic in man. Like other barbituric acid derivatives, this salt undergoes hydrolysis, and ultimately decarboxylation when held in solution. It should be highly purified and its solution (10 per cent. in distilled water) accurately adjusted to an appropriate pH value, if used for producing anæsthesia in man. There is frequently a somewhat prolonged period of post-anæsthetic sleep, which in dogs could be successfully counteracted by the intramuscular injection of ephedrine and caffeine. The highly purified and accurately adjusted preparation has been used successfully for human anæsthesia in upwards of 1000 cases.

A. E. Koehler, L. Eichelberger, and A. B. Hastings reported that they had succeeded in separating from the suprarenal gland an epinephrine-free substance which was capable of elevating the basal metabolic rate and producing improvement in various clinical types of asthenia. These effects were obtained by oral administration of the extract.

Carbohydrate Metabolism.

A number of communications were read on the subject of insulin, but few had any present application to medicine. It is interesting that intrafœtal injection of commercial insulin in the goat caused a lowering of the maternal blood-sugar. In the depancreatised dog, absorption of insulin from the intestine was very materially increased by the presence of various liver products such as bile, or salt solution suspension of liver pulp.

The question of glycogen storage and combustion of carbohydrate in the absence of insulin has received attention, with some novel results. In the eviscerated rat (according to the work of the Cori's), injection of glucose causes no rise in the respiratory quotient (corr. value 0·71 throughout), and presumably no extra combustion of carbohydrate, but leads to a definite increase in the muscle glycogen. In the depancreatised dog (complete removal verified post mortem) survival without insulin has occurred for as long as three weeks. After the first few days the diabetic symptoms abate, the respiratory quotient creeps back to 0·9, the D : N ratio drops below 1, and the acetone bodies diminish markedly. If insulin is now given and then stopped the usual severe diabetic symptoms return once more. This work was reported by Soskin and Campbell, working at the Toronto laboratories.

Muscle.

The physiology of muscular exercise was the subject of nearly 30 communications. Two workers reported successful preparations of isolated involuntary muscle which behave regularly. Bozler, using the retractor pharynx of the snail, *Helix pomati*, has studied the relations of heat production and tension and found this plain muscle to differ only in the time relations of these quantities from the skeletal (voluntary) muscles of the frog. McSwiney and Robson have prepared sections of mammalian stomach muscle with vagus and sympathetic innervation, and studied the effects of stimulation of these nerves under various conditions.

Shaffer and Grünbaum have measured the excretion of lactate as a result of exercise (rowing, football, &c.), both in the urine and in the sweat, and record that in certain circumstances, notably in warm weather, the excretion is mainly through the skin. With the aid of cinematography, Fenn has analysed the movements of running men, and calculated their efficiency. 22½ per cent. of the chemical energy liberated was developed as mechanical energy. The relative values of wind-resistance, gravity, and the checking of limb movements, as sources of energy loss, could be estimated.

A neat technical advance was that of Sosnowski, who has constructed a tension recording-lever for small muscles, based on the piezo-electric properties of quartz crystals. It is claimed that tensions developed in truly isometric twitches can be measured.

The Final Days.

The closing address of the Congress was given by Prof. Léon Fredericq, President of the Second International Congress which met at Liege in 1892, his subject being "Souvenirs des premiers Congrès de Physiologie." An invitation to hold the next meeting of the Congress in Italy was accepted with acclamation.

The foreign members of the Congress were conducted to Woods Hole, where they were entertained at the Marine Biological Station, which is situated in beautiful surroundings. The party then visited New York, where they were the guests of Columbia University for a week, during which time many excursions to medical centres, research institutes, and other places of interest were made.

From New York 200 of the visitors went up the Hudson River to Albany, where they were met and conveyed by motor coach to the laboratories of the New York State Department of Health. They were made welcome by the staff, entertained to an informal supper, and taken in small parties over the laboratories. Within four hours they were travelling on to Canada, but those four hours were a memorable example of quietly efficient and kindly American hospitality. At the Niagara Falls the party halted for a day to view the Falls and the famous rapids. Prof. Best escorted the party down the Niagara River and across Lake Ontario to Toronto, where the University lent its dormitories for the accommodation of members for two days. Though one of these days was a national public holiday, the laboratories were kept open, and the delegates were able to see the work in progress. Prof. Henderson and his energetic committee entertained the party to lunch, the Prime Minister of Ontario and his Cabinet to dinner. Continuing their journey across the Lake and down the St. Lawrence River, the delegates reached Montreal, where they were received by a joint committee of the universities of Montreal and McGill. The Biological and Medical buildings of McGill were open to inspection by the delegates, as also was the Royal Victoria Hospital, and they were entertained by the city of Montreal and the province of Quebec.

The party left on the evening of Sept. 6th by the ss. *Doric*.

Opening of the Medical Schools.

SEVEN of the London medical schools inaugurated the winter session during the past week with a formal ceremony. We print below in abridged form the opening addresses delivered to the medical students of Guy's, St. George's, Middlesex, Royal Free, and Westminster Hospitals. The prize-giving at Charing Cross Hospital takes place this (Friday) afternoon.

GUY'S HOSPITAL.

SIR HUMPHRY ROLLESTON, BART., G.C.V.O., K.C.B.,
REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE.

MEDICAL SOCIETIES: THEIR ORIGIN AND VALUE.

[Sir Humphry spoke of the traditions of the Medical School of Guy's Hospital, and of the fine men and great books which had emanated from this school. Great as were its traditions, he said, Guy's did not live on its inheritance, for its *Reports*, so unobtrusively inspired by Dr. A. F. Hurst, the senior physician, were not only the oldest in London but, like vintage wines, progressively improve. In yet another direction the school of Guy's Hospital has played a pioneer part—namely, in the growth of medical societies, and thus furthering medical education and progress, general understanding, and unity. He then noted the connecting links between the Physical Society of Guy's Hospital, which flourished from 1771 to 1852, and the Medical Society of London, which was its junior by two years. The success of the Physical Society, though followed by flattering imitation, had carried with it a penalty, for the competition of younger societies killed it. Its declining years were cheered by watching the activities of its offspring—the Pupils' Physical Society, which dated from 1830, and had always been confined to students of Guy's Hospital, members of the staff being eligible as honorary members only. He continued:]

Medical Clubs.

The evolution of a full-blown medical society can easily be traced; the embryonic stage is found in medical friendships and the gregarious nature of the human man—an attractive feature more frequent and effective in early than in later life. In due course the initiative of some energetic spirit creates a medical coterie or club, and meetings for the reading and discussion of papers follow. By expansion and systematic organisation a medical club may, like the transformation of a financial syndicate into a company, give birth to a society with a more catholic membership; for example, the informal "Moorfields Club," which met in the house surgeon's room for the discussion of ophthalmological cases and problems as far back as 1866, in 1880 took steps to establish the Ophthalmological Society. Sometimes, on the other hand, the club stage is short-lived or is practically short-circuited—for example, in the formation of the Association of Physicians of Great Britain and Ireland, in which William Osler, Richard Douglas Powell, William Hale-White, Wilmot Herringham, and others were the true begetters.

Medical clubs differ from medical societies mainly in their less formal and more private character, in the more personal element, especially in the election of members, their limited membership, and usually in not possessing a library, which is such an essential asset to a medical society. To some extent this serious want may be met by a subscription to a circulating library, and in some instances the book-club element forms the basis and covers all the educational activities of a medical combination. Medical clubs very rarely publish their proceedings, but the Charaka Club of medical bibliophiles, mainly resident in New York, has brought out a number of volumes containing the papers read at its meetings. A medical club is the organised outcome of a group of men working in unison; these clubs flourished long before the word team-work became popular in connexion with those engaged in original research, but the same fundamental principle that inspires the research workers is shared by clubs or small societies designed for mutual education. Medical clubs differ much in their objectives, the prominence of the scientific and social characters varying widely. Some starting with high educational intent have become more social and post-prandial, so that later the members are chosen rather for their clubbable attractions than because they are pale students. Such a lapse from the ideal of high thinking to high living is, it must be feared, more frequent in clubs made up of prosperous qualified men than in those whose members are *in statu pupillari*.

[Sir Humphry Rolleston then discussed the advantages of medical clubs in providing opportunity for the informal, private, and critical discussion of new work in a pre-publication phase, for visiting clinics at home and abroad, and in promoting friendly feeling among co-workers. A valuable and instructive, though often evaded, function of a medical club was the obligation on each member in turn to contribute a paper or demonstration; for this provided a training in the art of accurate argument and exact expression. If medical writers and speakers were compared, it was noticeable that the successful writers had more often been physicians, as the Guy's traditions proved; whereas real oratory, a rare accomplishment, seemed specially related to surgical eminence, as was so remarkably shown by the succession of William Lawrence, James Paget, William Savory, and Henry Butlin at St. Bartholomew's Hospital, and by other Presidents of the Royal College of Surgeons of England. A further debt to the early medical societies was that their publications preceded and led to the evolution of medical journals. He proceeded:]

Medical Societies.

By those who do not attend medical societies, and may perhaps regard this devotion as a youthful indiscretion, the reason confessed for their abstinence is sometimes not indolence, but a delicate disdain for self-advertisement. Modesty is indeed an admirable virtue, particularly in our rivals; but the English are somewhat prone to an excess of this fine trait, and men too diffident or hypercritical of their own work, or too much impressed by the verse expressing a desire that "mine adversary had written a book," may delay publication of their observations indefinitely so that they remain mute and inglorious, and thus may perhaps delay the progress of knowledge. The wisely modest man remains a student all his life, and recognises a medical society as a means of easily obtaining post-graduate instruction. With the passing years the habit of attending meetings wanes, and eventually is given up altogether, ostensibly on account of the increasing calls and fatigues of professional life; as a result the individual necessarily loses touch with what is going on, though with the unconscious failure of mental elasticity he may remain blissfully self-sufficient. He may excuse himself by saying that he can read it just as well and more quickly; but, even if he remembers to do so, the effect of the written word is not always the same as that of the spoken address. Further, and this is not very rare, laziness when disguised, like a wolf in sheep's clothing, under the cloak of modesty, may exert an unwholesome influence; a cynical attitude to societies in a senior tends to counteract the benefits that may be obtained from the give and take of debate; it may discourage others from speaking and sharing in the stimulating contest of wits which by a flash may create new ideas and strike out hypotheses worthy at least of being tested. At first public speaking is a nervous experience, and with many, even the best-known speakers, this is always the case; as Mr. T. P. O'Connor, the father of the House of Commons, and so an authority, has said. As the restless anxiety is felt before rather than during delivery, the intending speaker may easily

be inhibited by the unkind, perhaps whispered, suggestion during a meeting that the speakers are bores; but he should estimate the significance of the snub by consideration of his critic, for it may be a case of:

> "So have I heard on Afric's burning shore
> Another lion give a grievous roar,
> And the first lion thought the last a bore."

That those prominent and keen at societies possess the faculties which make for professional eminence and success is well shown by the records of the Royal Medical Society, run by the students at Edinburgh, the Presidents of which so often reach the seats of the mighty both in the Northern Athens and in the capital of what the Scots have modestly called the southern peninsula of their country; Richard Bright, for example, was President of the Royal Medical Society before he left Edinburgh in 1813 for Cambridge, where he spent two terms before returning to Guy's. Another instance of early activity at societies as an omen of future success was seen in London about fifty years ago, when no medical meeting was said to be missed by "the three G's"—Sir James Goodhart, Sir William Gowers, and Prof. W. S. Greenfield, of Edinburgh, who reached the highest places in general medicine, neurology, and pathology respectively.

In addition to the educational advantages of merely listening to papers and following the discussion, there is the inestimable benefit, already mentioned, that writing a paper confers on the author, for it should entail a thorough review of the subject and the critical marshalling of data, ideas, and the results of his own experience. Without some stimulus of this kind, such as lecturing in a medical school or writing a book, the habit of *not* reading systematically easily gains the dominion over us, and we, though at first imperceptibly to ourselves, thus begin to drop behind in acquaintance with progressive medicine.

ST. GEORGE'S HOSPITAL.

EDMUND I. SPRIGGS, M.D., F.R.C.P.,
SENIOR PHYSICIAN, RUTHIN CASTLE.

DOCTOR AND PATIENT: FOUNDED ON 33 YEARS OF MISTAKES.

IT is perhaps not unfitting to-day to scan and set forth the relation between patient and doctor in the same way as we describe a disease in its various aspects; beginning with the history and passing on by way of ætiology, method, and complications to the prognosis and treatment.

The written history of the relation between doctor and patient shows that you are the recruits of a great army of men who have served this art, and inherit the fruit of their labours. You are more fortunate than they in many respects, of which I shall mention two. The first is that of intellectual freedom. The second respect is that as compared with even recent days, the means of controlling and arresting disease are fuller than ever before and growing daily.

Ætiology and Pathology.

As regards the *ætiology* of the relation between doctor and patient, it is, of course, the sick person who sends for the doctor. The method of selection is various. If you are chosen because you are known to be competent, live reasonably near, or have succeeded the former doctor, well and good. If you do your part there is a fair chance that the relationship will last. But if you are chosen because your patient's dinner or dancing partner told her that you were absolutely the only man for the nerves, or the gapes, or whatever it is—beware. It is a positive danger to have emotional persons going about saying Dr. So-and-so is wonderful. As soon as many people say the same it becomes the dernier cri, and this lives only a little longer than a May-fly. De la Fourchardière, in an amusing cynical book entitled "Les Médecins malgré nous," points out that once the relation is made the patient wants the doctor if there is nothing the matter to find something; if there is something the matter, he wants him to find nothing.

A *pathology* may arise in the relationship between patient and doctor on the part of either. As regards the patient: nearly every one will be a single-minded person seeking relief, ready to give you all possible help in your work, bearing illness bravely, and commanding your admiration and regard. But you will learn to recognise a few folk who are less anxious to keep to the truth than to produce a certain impression; you will also become familiar with the sublime unconscious selfishness of the neurotic; and with the imitation great who show their importance by giving trouble. The relationship is also out of order if the patient expects a sound opinion without adequate information, examination, and reflection; or to be treated without interference with harmful habits. In these days the prevalence of new ways of observing has led some patients, and some doctors, alas! to a new error—namely, that of undervaluing careful clinical method, upon which our work must always be founded, and of thinking that some test will of itself make the diagnosis. You will bend to none of these errors, but will advise what you know to be right. The difference between you and the charlatan is that you are there to do the patient good by any method, whereas the charlatan is out to sell his wares, whatever they may be. The charlatan is judged by his successes, and we by our failures. And, of course, he has plenty of successes. He benefits, like all who follow the healing art, whether qualified or not, by the simple arithmetic of illness. If everyone needs a doctor on the average ten times in his life he only dies once—that is, in nine out of ten illnesses the patients are likely to get better, provided that they are fair samples of the population. Should you become a consultant and draw your patients from your fellow-doctors, the proportion of your successes, on an arithmetical basis, will be still less, because all the easy ones will have got well, and only those who need further help will be sent.

The *method of work* is of lasting importance, and that you will be taught here. You will soon recognise that in illness there are commonly two elements—namely, the disease, and the patient's natural anxiety about it. The second element can often be put aside by a quiet assured manner on your part.

When *taking a history* you will find that patients will speak with conviction about what cannot be established—e.g., "I make such a lot of bile," or "I do not assimilate my food," "I suffer from the liver," confusing an unstated fact with an overstated interpretation. You will form the habit of keeping the symptoms and signs well separate in your mind from any interpretation or diagnosis; and will try to avoid statements about what we do not know, remembering all the time how much there is, present and active, in any case, which is hidden.

If the case is a new one, you will find it a great help to get into touch with *other doctors* who have seen and treated the patient. Doctors are colleagues, not merely rivals, and the solidarity of our profession is not only right for us, but especially good for our patients. The public does not always realise this, putting much faith in a series of so-called independent opinions, which are sometimes just unconnected guesses. From some experience of obscure and difficult problems I say that special opinions are of much more value when those giving them communicate with each other, and have knowledge which, in many cases, only the family doctor can supply.

The family doctor is the unit of all medical work. His standard has risen enormously during the last generation, and will continue to rise. He should control the case, using specialists and institutions as need arises. His is the responsibility, and this is right, for he has to live with or near his patient for their common lives. Patients who do not keep to their doctor run a considerable risk, because no one else can hold all the threads.

I believe we fail more often in simple apprehension than in the two further parts of logic. The faculty of judgment—i.e., "of arranging the individual things we meet in general notions or classes . . ." and the faculty of reasoning founded upon it are, I suggest, less often at fault; in any case neither judgment nor reasoning will avail unless founded upon a right apprehension of the available facts. If you learn how to examine properly the avoidance of certain mistakes becomes unconscious. It is like style in cricket, tennis, or golf, which requires attention to little points, details which seem irrelevant when the main object is to hit the ball hard and straight. But attention to them ends by making your play, not perfect ever, but a more skilful and better game, and a game which you enjoy more yourself. Affectations correspond to useless waggles of the bat or club. And you will avoid like poison the mental attitude of the man who holds his club up in the air after a successful shot, as if to say, "See what I have done."

Diagnosis, Prognosis, and Treatment.

The public at large has only lately begun to grasp the importance of giving time and thought to diagnosis. The attitude hitherto has been that the doctor should at the least name the disease, after a short interview, and if he does not know what the matter is, the rignt course is to try another doctor and get the treatment decided upon and started as soon as possible. The fruits of this attitude are sometimes astounding. For instance, if it is recommended that a young person should go abroad for six months or take a voyage round the world for health, the whole family will foregather, and if necessary subscribe to carry out what is advised. But to spend a month, or some money, in finding out what the matter is, how bad it is, and what measures do most good, strikes many people as savouring of incompetence on our part. I could recount instance after instance of people who have spent years in trying different treatments, particularly abroad, whose cases could have been cleared up by simple investigations. But this phase is abating and you will perhaps before long be faced with a converse one which I begin to meet—namely, that presented by the people who are all for diagnosis but have no time or patience to try to get well.

I have mentioned that doctors may walk into the pitfall of making a diagnosis on a particular finding either at the bedside or in the laboratory. It is necessary, particularly with unexpected findings—a lump, a large heart, fluid in the chest, a gall-stone—which puts the idea of one particular disorder in your mind, to stop and ask yourself: Is this the cause of the ill-health? Can it be anything else?—going over each symptom. When you have given time to a knotty case, and have made a diagnosis, do not be too quick to alter it. I have several times been wrong in taking a diagnosis back.

The *complications* that may arise in the relation between doctor and patient are infinite. Among the most common on the part of the doctor is anxiety; it is essential not to allow anxiety to bias judgment. If there is one place more than another where a fidgety mind is not wanted it is in the sick-room. The doctor who worries too much takes away from his own usefulness; though I suspect that he that does not worry at all is no doctor.

Doubt and anxiety will be lessened if you are able so to arrange your work that you can deal with a problem at the time. Having your facts, go into the matter fully. Keep good reference books, and read up the case without delay. To-morrow fresh puzzles will come and drive the finer points of this one out of your mind. In some cases books do not help much, for diseases are not so obliging as to confine themselves to type; and each of you will meet one day a new disease, and many times new combinations of diseases. You must then settle down and think. And such thinking will be the more fruitful the more you have heeded your anatomy and physiology, and your training in the post-mortem room and at the bedside.

On the part of the patient the worst complication is mistrust. This is only natural in the first instance, and must not be resented. By the time that you have done all in your power to help your patient it will nearly always have vanished. If not, you are justified in suggesting to him in the most friendly way that what he really wants is a doctor he can believe in. Faith is, of course, a help. De la Fourchardière, our cynic, says that is why the clergy go to Vichy and the doctors to Lourdes. Some patients fear that the doctor is trying to keep them under treatment for longer than they think necessary. There are many more whose faith wavers, not unnaturally, when they are advised to follow a prolonged tedious course involving self-denial. It is expedient to keep in mind that outside causes influence progress, for good as well as for evil. It is common to find a patient not so well and full of complaints, and learn afterwards of some personal disturbance unconnected with the disease or its treatment, such as worrying letters or the non-arrival of expected news. You will often be asked to give counsel on matters which are not strictly medical at all. If your advice may concern others, when possible see the others. Your patient's interests come first, but it is in those interests that you should not be merely an advocate of his or her views, but should guide rightly.

The *prognosis* of the relations between doctor and patient is almost uniformly good, but if an exact relation between success and gratitude is expected there will be disappointment. I remember one patient in whose case we were doubly fortunate in that a serious disease was found and means of complete relief applied successfully. He bade me farewell as follows: "Doctor, I can never thank you enough. When I came here I was done and I knew it. Now I am well again." His eyes filled with tears, he shook me by the hand, and, looking to the open windows, added, "I believe its the air." If you have learned to laugh at yourself, you will have a good deal of fun. On balance, the rewards are more than the deserts.

The *treatment* of the relation between ourselves and the sick person is clear enough if we ask ourselves two questions: (1) How should I like to be dealt with if I had this patient's disease and his mental make-up? (2) How would it do me most good to be dealt with? The ideal blend of sympathy and firmness, we can envisage, but alas! seldom attain.

It is, on paper, hard to define how much a sufferer should know about his illness. It is generally better to tell an intelligent person the truth, in as simple language as possible, avoiding technical terms and all detail which may be brooded upon later and misinterpreted. It is more skilful to put the facts so that they are not alarming than to withhold them. If a man is the subject of a serious chronic disease he often knows, at the least, that he cannot be the same again, and will be satisfied if you dwell upon how to relieve rather than upon the unlikelihood of cure. The case of cancer is sui generis, but in effect difficulty seldom arises. Above all, in your desire to answer questions frankly never go beyond what is certain. To destroy hope in the mind of any patient is inexcusable. It is also unwise, because you do not always know. We are not there to pass sentence. Remember "Guérir quelquefois, soulager souvent, consoler toujours."

Conclusion.

In all these matters you will have the advantage of learning your profession in a country in which the standard and the conduct of practice is higher than in any other; in a city the streets of which were trodden by Harvey and Sydenham, Hunter, Jenner and Young, and Lister; and at a hospital which has had more than its share of these pioneers of medicine. The physicians and surgeons at St. George's have had the reputation of being not only technicians; they have played a part in other spheres—science, literature, art, and sport. And that is one reason why they have trained so many good doctors. A doctor

may suffer a little in his personality if he does nothing but work. And to keep on a level keel, you will, if you are wise, carry on our hospital tradition. Do not have all your friends doctors. Be a man among men away from the sick-room. In looking back to the devoted clinical teachers of my youth I sometimes wish that in their desire to pass on to us what was known they had left less of an impress of finality; but had rather opened our eyes to the great fields of the unknown that lay before us, and had stirred us to believe how easy it might prove to the patient observer to reveal new facts. I had the idea as a student that all the main discoveries in medicine had been made, and that new ones would come only from the exceptionally able, and that after laborious and abstruse research. It was not so, and it is not so now. A great Frenchman said nearly 300 years ago, "the sphere of our knowledge expands without ceasing, but as it increases so does the number of its points of contact with the unknown." I have only to look back upon the changes and the simplifyings that have come over medicine in my short span to know that there are those listening to these words to-day who will add to our knowledge and to the means by which we may modify and arrest disease.

MIDDLESEX HOSPITAL.

E. A. COCKAYNE, M.D., F.R.C.P.,
PHYSICIAN TO THE HOSPITAL.

LIFE'S ENDLESS CHAIN.

[Dr. Cockayne said that the subject of heredity was a branch of medicine almost completely ignored by many authors of text-books and by teachers in the medical schools. Its study afforded evidence of the close relationship of the sciences taught in the preliminary course to one another and to the theory and practice of medicine. He summarised the simple experiments made by the Abbé Gregor Mendel in 1865 which had completely altered our views on the subject of heredity, and explained the laws of inheritance of dominant and recessive characters in plants. Experimental methods of breeding had shown that the characters of animals behaved like those of plants. Dominants were transmitted direct from parent to offspring, and recessives in the presence of the corresponding dominant were handed down from generation to generation, causing no outward and visible sign of their existence in the transmitters, but appearing again unaltered whenever a mating between two impure dominants took place. Dr. Cockayne then discussed the applicability of the Mendelian law to man. He said:]

Heredity in Man.

In man no direct experiments are possible, and the small families and the slow sequence with which one generation follows another make it far more difficult to prove that in him, too, inheritance obeys the Mendelian law, but the greater the number of long and accurate pedigrees that are accumulated the more does its applicability to man become apparent. Most of these pedigrees, it is true, illustrate the inheritance of conditions more or less abnormal, those illustrating normal ones are seldom simple. For instance, the inheritance of the colour of the hair and eyes, and of pigmentation of the skin, in which segregation undoubtedly takes place, are complex cases in which more than one pair of factors are involved. One form of curly hair, however, is a good example of the complete dominance of one normal character, hair spirally coiled and oval in cross-section, over another character, hair straight and circular in cross-section, and the pedigree shows that in the marriages between a curly-haired and a straight-haired individual half the children had curly and half straight hair.

If we turn from the physiological to the border-line between the physiological and the pathological we find that the same law of inheritance prevails. In man two types of piebald are met with, and in both of them the distribution of pigmented and unpigmented areas has its exact counterpart in a breed of domesticated animal, and in both man and animals the two types of kinds of piebald pattern are dominant to the normal pigmentation. Albinism, due to partial or complete inability to form the pigment melanin in the skin, hair, eyes, and internal organs, is definitely pathological. Owing to its conspicuous appearance and its widespread though rare occurrence in many species of animals, mammals, birds, and even reptiles, it has always excited public interest. There is more than one kind of albinism, but whatever its kind and in whatever animal or race of man its mode of inheritance has been studied, it has proved to be recessive to normal pigmentation. Though rare in most races of man, amongst an isolated tribe of Indians in the Daren Peninsula of South America albinoes are numerous. The tribe does not permit the marriage of two albinoes, and its common occurrence is due to the isolation of the community and the consequent frequency of intermarriage between blood relations, who are impure dominants. In these Indians albinism is always associated with small stature and increased hairiness of the skin, and in Europeans with visual defects. I mention this because what we call a unit character is often merely the most easily recognised, but not necessarily the most important of many departures from the normal, all of which are dependent on a single factor.

Another chemical error inherited as a recessive is porphyrinuria, in which porphyrin, a red pigment easily identified by chemical tests and by spectroscopy, is excreted in the urine. Here we trespass on the domain of physics, for the chief disability of those unfortunate people, who cannot break down hæmoglobin, the red colouring matter of the blood, beyond this stage is that the porphyrin accumulates in the skin and renders it sensitive to sunlight, which blisters and destroys it. Xeroderma pigmentosum is another recessive defect, in which the skin is so affected by sunlight that cancer of the exposed skin develops at an early age, and though the nature of the defect is still unknown, its resemblance to porphyrinuria makes one suspect that it too is an inborn chemical error. If so it may prove to be the best clue to the cause of cancer. As an example of defective structure I will cite polydactylism, which is dominant in most families, and it is interesting to note that in some of the domestic animals polydactylism occurs and is inherited in the same way.

Anomalies of the ductless glands, so fascinating because of their far-reaching effects on growth and metabolism, are in some cases hereditary. Diabetes mellitus, due to a deficient secretion of insulin by the pancreas, has many different causes, but in some families a weakness of the gland is inherited and transmitted as a recessive character. Man is not the only sufferer, for in mice a strain has been met with in which the same disease is transmitted and, as in man, it is a recessive. Gigantism and acromegaly, with its strange overgrowth of the extremities, are due to over-secretion of the anterior lobe of the pituitary gland and are inherited as recessives, while the excessive and perhaps abnormal secretion of the thyroid gland, that causes exophthalmic goitre, is inherited as a dominant in some families.

One might multiply examples of inherited physiological attributes or chemical and physical defects indefinitely, but enough has been said to show in what diverse conditions Mendelian segregation of unit characters can occur.

The Chromosomes as Carriers of Mendelian Factors.

The microscope has enabled us to supplement the work of the experimental breeder by revealing to us the physical explanation of the manner in which this segregation is brought about. The student of histology sees in every artificially stained cell a deeply coloured central part, the nucleus, and in a series of sections showing the various stages of cell division he sees the nuclear material form a ribbon and then split up

into a number of small pieces, the chromosomes, a number varying in different species of animals and plants, but with certain remarkable exceptions constant in any given species. In the process of formation of the germ cells, both male and female, a reduction in the number of the chromosomes takes place. Half are lost, so that a germ cell only contains half as many as any of the cells of the rest of the body. It is only by the union of a male with a female germ cell that the full complement can be reached once more. Nor is the union haphazard; each chromosome unites with its corresponding chromosome and each part of a chromosome with the corresponding part of its fellow. Long before the discovery of Mendel's paper it was believed that the nuclear material of the cell was the part which carried the qualities of one generation to the next, and recent work has consistently added strength to this conviction. If we regard the chromosomes as the carriers of the Mendelian factors that determine inherited characters, we can understand how the halving of the number of chromosomes in the germ cells is adapted to ensure that each germ cell shall contain one of every pair of corresponding factors, and we can also understand how the manner in which the full number is restored in the fertilised ovum ensures that one of every pair of such factors is derived from each parent.

If the cells of the body contain in a pair of corresponding chromosomes both members of a pair of factors, say A and B, the germ cells of that individual will be of two kinds, one kind having one member of the pair, A, and the other kind the other member, B. If this individual marries another of like constitution the expected combinations of their germ cells are A with A, B with A, A with B, and B with B, and each combination should occur with equal frequency, so that if A is the factor for a character dominant to B the proportions among the offspring will be one pure dominant, A A, two impure dominants, A B, and one pure recessive, B B. Thus the behaviour of the chromosomes is adapted to bring about the results that are actually found in experimental breeding.

So far we have dealt only with characters that are met with equally in both sexes, and the explanation given will not cover the inheritance of those met with in one sex alone. In some beetles there is a chromosome fewer in one sex than in the other. In other animals, though the number of chromosomes in the two sexes is the same, one of a corresponding pair is smaller or, as in flies, differently shaped in the cells of the one sex. Conventionally we speak of this pair of dissimilar chromosomes, which appear to be the determiners of sex, as the X and Y chromosomes, and it is found that in man the male has an X and a Y, and the female two X chromosomes in the cells of the body. Thus when the germ cells are formed all those of the female will be alike, each having an X chromosome, but those of the male will be of two kinds, one having an X chromosome like those of the female, and the other a Y chromosome. Union between a germ cell of the female and a male germ cell of the former kind containing an X chromosome will give rise to a female child, whereas union with one of the latter kind containing a Y chromosome will give rise to a male child. The X chromosome may carry factors for normal or pathological characters just like any of the ordinary chromosomes, but the Y chromosome, which as I have said may be absent altogether, seldom if ever carries any factors at all.

Female Transmitters of Abnormalities Affecting Males.

This fact gives the key to those strange cases of inheritance in which the male alone shows the abnormality, but has apparently healthy children, while the females, though not themselves affected, transmit it to half their male offspring. This mode of inheritance, spoken of as sex-linked, can be explained by the factor concerned lying in the X chromosome and being recessive. If an affected man marries a normal wife all his sons will be normal, because they only receive the unimportant Y chromosome from their father, but all his daughters will be capable of transmitting the condition, because the X chromosome received from the father carries the recessive factor, though the second X chromosome received from the mother carries the corresponding dominant and so makes them appear outwardly normal. Half the germ cells of one of these transmitting females must have an X chromosome carrying the dominant factor for the normal and the other half an X chromosome carrying the recessive factor for the abnormality, so that, if she marries a normal male, there will be an equal chance of either kind of germ cell uniting with a male germ cell having a Y chromosome. Thus half the male children will be normal and half will inherit the abnormality. Half the female children will be normal, and the other half will appear so, but will be transmitters of the abnormality.

In addition to normal characters, of which we know little, a number of interesting and important human abnormalities may be inherited in this way, such as colour blindness, hæmophilia, optic atrophy, muscular dystrophy, and deficiency of hair and teeth with absence of sweat glands, though in other families the same or similar abnormalities may be dominants carried by one of the ordinary chromosomes and so affect both sexes alike. This dissimilarity of the sex chromosomes also provides us with a scientific explanation of the popular belief that sons take after their mothers. A son receives from his mother an X chromosome bearing the factors for many characters, and all of these will affect his mental and physical traits, whether dominant or recessive, because the Y chromosome received from his father bears no corresponding member of the pairs.

I have only mentioned the simple case of a pair of corresponding characters, but there are many more complex examples. Even now we can foretell of many human characters whether they are likely to be transmitted to the offspring, and, if so, in what proportion they may be expected. If dominant they are likely to appear in the next generation and in half the children, since pure dominants are almost unknown in man, but if recessive it is most improbable that they will appear in the next generation, though they will reappear in a subsequent generation near or remote. We can give a warning that, when a recessive character has appeared in a family, marriages between blood relations and especially between first cousins are likely to result in its immediate reappearance, because many impure dominants are present in such a family and marriage between two of these will lead to its appearance in a quarter of the children. The adolescent insanity, dementia præcox, is an example, and the frequent intermarriages of Parsis in Bombay is the cause of its high incidence among the members of this gifted community. Amaurotic family idiocy is another example, and in this fatal disease, which is almost confined to Jews, blood relationship between the parents can be traced in the majority of cases. Two similarly afflicted people seldom marry. Deaf-mutes are the commonest exception, and since one form of deaf-mutism is inherited as a recessive some of these marriages give rise to the expected result, a family of children all of whom are deaf-mutes.

Great as the advances have been in our knowledge of the inheritance in man of characters, desirable and undesirable, during the last two decades, an almost unlimited field awaits our further progress. There may be a number of diseases which originate from an obscure but innate defect, as pernicious anæmia appears to originate from an inherited achylia gastrica. Unsuspected metabolic disorders must exist, which when discovered will shed new light on the normal chemistry of the body.

Conclusion.

The science of eugenics is in its infancy. The application of Mendelian principles to agriculture and stock raising has had far-reaching results. For instance, the output of sugar per acre in Java and of wheat in the temperate zone has been greatly increased.

and the use of a sex-linked character has become the basis of a large trade in "one-day chicks" in America. But its application to the improvement of the human race has been and must for many years to come remain very limited, nor do I see how it can ever be of equal value, because the methods employed in improving a breed of domesticated animals cannot be used for man. The stamping out of undesirable characters would be easy if they were dominants, but, if they were recessives, it would be a long and perhaps impossible process, and even if the worst of all the inherited afflictions of the human race were eliminated, they would still arise again from time to time as fresh mutations.

Looking at heredity alone, can anyone say with justice that a thorough grounding in the basic sciences of chemistry, physics, botany, and zoology is a waste of time for the doctor? The same laws govern heredity in plants and in animals, vertebrate and invertebrate, even in man himself, and there can be no doubt that the parallel cases of inheritance in man and animals have a deep significance. Our understanding of this we owe to these sciences, that have revealed in part the secret of life's endless chain and shown us how, in spite of apparent gaps, it extends unbroken from one generation to generation. Surely the wider the knowledge of them a man brings to his study of medicine the more clearly he will appreciate the essential unity of nature.

ROYAL FREE HOSPITAL.

DR. JANE WALKER, J.P.

THE RETURN OF WOMEN TO MEDICINE.

Women Doctors in History.

THERE are many proofs that from the beginning of time women were quietly and efficiently tending the sick and binding up wounds. Many women doctors were in practice in ancient Greece and Rome. Œnone, the wife of Paris, had the gift of healing, and the Cornish Princess Isolde was a doctor. It has always seemed to me that there is a good deal of evidence for the book of Ecclesiastics having been written by a woman doctor. The authorship is attributed to Koheleth, a feminine word in Hebrew for a teacher. It certainly shows signs of having been written by a somewhat disillusioned person—a state of affairs not altogether inconsistent with the experience of a practitioner of the healing art of some years' standing.

In the Middle Ages learning was not widely diffused, and was not regarded as a gentleman's accomplishment, and was therefore in a certain degree left to women. Ladies of the mediæval households were both nurses and doctors. Miss Kemp Welch in "Six Mediæval Women" gives a most graphic account of the day of one of them. Many heads of nunneries studied medicine, notably St. Hildegarde, who wrote the most famous book on medicine of her time. Then there was the famous school of Salerno, where in the tenth and eleventh centuries was a fine medical school, in which women as well as men taught, wrote, and practised medicine and surgery. In the twelfth century romance, "Le Lai Des Deux Amants," there is mentioned a woman who had studied for 30 years at Salerno, and in that celebrated school had completely acquired the art of medicine. In the romance of Gwaine and Gawin, when he is wounded in his fight with a giant, he is "healed at a fair castle by two maidens who were learned in leechcraft, and they also restored to health his lion." In the Via Sacra round Athens we constantly see Greek inscriptions, such as "To Basile, the Woman Doctor," "Thecle, the Woman Doctor, lies here." In Ostia, the Rhone Valley, in Spain and Africa, many a marble slab has been found erected to women doctors by some grateful patient. Galen mentions Aspasia, from whom he copied many prescriptions, and Cleopatra, a famous gynæcologist, another of his colleagues. There must have been women doctors in Egypt for thousands of years.

There is a story told by a Latin author of the time of the Emperor Augustus, that at one time it was forbidden in Athens for a woman *or a slave* to study medicine. Whereupon a certain woman cut her hair short and dressed as a man, studied and practised medicine with such success that the women pleaded for her. Whereupon the law was repealed, and women were free to study and practise medicine. Bologna had in the eighteenth century at least seven women professors—one, the professor of mathematics, was appointed by the Pope, and another, Anna Maria delle Donne, was appointed professor of obstetrics by Napoleon Bonaparte. There were many medical women in Italy, Germany, France, England, Spain, and Poland, who practised or wrote medical works before the revival of the nineteenth century, but after the fifteenth century the number of women practising medicine became fewer, and finally almost disappeared. In Elizabeth's time, Anne Cooke, who became Lady Bacon, and her sister Mildred, Lord Burghley's second wife, were both described as skilful in surgery and distillation of waters.

In the seventeenth century Margaret, the celebrated Duchess of Newcastle, was taught physic and chemistry. During the Stuart period the sense of public duty, so noticeable in the learned ladies of Tudor times, found its chief expression in the study of medicine.

There is scarcely a description of the upbringing of girls at this time which omits all reference to the study of physics. At home the mother instructed the daughter, but this was not the only means of obtaining information. Women doctors took apprentices. We read in Mrs. Elizabeth Walker's biography that she was very competent both in "physic and chyrurgery." Her medicine store contained at her death a good store of vomits, purges, sudorificks, cordials, pectorals, almost all kinds of syrups, and strong and simple distilled waters. Some women doctors had a fashionable reputation. John Evelyn supped in the City with a gentlewoman called Everard that was a very great Chymist, and obscure country villages had their female practitioners.

When medicine became more of a science, and less of a mystic empirical art, the men of science declared that women were incapable of learning it, and gave them no chance of proving whether they were capable or not. At the same time the old prejudice as to the mental inferiority of women was helped by the new prejudice that every woman possessed of unusual skill was a witch, and deserved to be cruelly done to death. Naturally they ceased to practise medicine. In France it took 300 years of struggle to exclude women from the profession. In Henry VIII.'s reign a law was passed which prevented women from practising medicine unless they were approved by a bishop, who should call unto him four physicians and four surgeons. Apparently no women were examined and approved, but still some of them continued to heal people without payment. The passing of the Medical Act of 1858, though a great advance in many ways, made it impossible for women to practise medicine unless and until a university or corporate body with power to examine them would do so and grant them degrees.

Famous Women and Famous Men.

In our own times the onslaught on the closed and barred gates of the citadel of medicine began with a thirst for knowledge, when women demanded higher education for themselves.

Among the pioneers in the women's medical profession Dr. Elizabeth Blackwell, Dr. Elizabeth Garrett Anderson, and Dr. Sophia Jex-Blake are outstanding. Elizabeth Blackwell's name was entered on the British Register in 1859. The other two first met at a lecture given by Dr. Blackwell in London, and from this meeting was born in them the determination not only to study and practise medicine, but to make this career available to others. After

many difficulties they achieved their own medical education and then, with the help of Mrs. Thorne, managed to infuse others with their spirit and to secure the foundation of the London School of Medicine for Women. Some men were sufficiently enlightened and in advance of their times to see the justice of allowing women to carry on whatever work they felt they could do. In the very early days nearly 200 men doctors had signed a petition in favour of women in medicine. Sir James Paget was one of them, although he did not quite approve of women entering the medical profession.

Sir James Stansfeld's claim to enter the army of famous men as far as we are concerned is that he was the most active agent in getting the Royal Free open to us for practical training through his influence with Mr. Hopgood, chairman of the board of management of the hospital. Later on in the same year the London University agreed to admit women to medical examination and degree. Another great man was Dr. King Chambers, who after urging women to get teaching somehow and then boldly to practise as unregistered practitioners, being ready to submit to examination when called upon, joined in helping to found our school.

It was Dr. F. A. Anstie who definitely promised to become a lecturer if the women would get a school of their own fit for first-class theoretical courses. He believed the school would get teachers from other schools if that were done, and that then, with that evidence of sincerity and energy in work, some hospital or hospitals would give way and grant facilities for clinical teaching and experience. In every move he made or suggested he was right and far-seeing. He held the office of dean for only three months, during which all the arrangements were made for starting the classes in October, 1874, but he died of blood poisoning on Sept. 12th of that year. He was succeeded by Mr. Norton from St. Mary's Hospital, who occupied this post until 1883 and he was also lecturer on anatomy. It will be interesting to students who are entering for the first time to know that it was long before he made a real success of his profession. His total earnings for the first seven years of practice are said to have amounted to two guineas, and yet he lived to ride every morning on a favourite white horse and to own a villa on the Thames as well as his house in London.

A man great in many directions was Dr. William Allen Sturge, who was appointed physician and pathologist to the Royal Free Hospital, when the hospital decided to accept women as students in 1877. He was a brilliant lecturer and a warm supporter of women's medical education. He married Dr. Emily Bovell and they started practice together in Wimpole-street; but Dr. Sturge, however, was too delicate for the severe work of a London practice and they moved to Nice. She had to contend there also against the prejudices which prevailed at that time against medical women, and indeed, even now has not entirely disappeared. Disappointed and ill and saddened, she broke down again, and died in 1885.

Dr. Buchanan Baxter was a very remarkable person. He did not begin to study medicine until he was 30, did not practise till he was 40, and he died at 50. He was physician to the Royal Free Hospital only from 1881 to 1884, but he left an ever-abiding memory and devotion behind him. Mr. Stanley Boyd became lecturer on anatomy with Mr. Norton in 1882, and succeeded him in 1883. His close connexion with the school and all its doings kept up till the time of his death in 1916. There are innumerable famous men and women, both living and who are now gone, who have really gone through a very great deal to enable the present-day young woman and student to find herself where she is. They have indeed laboured that she may enter into her labours with peace and quietness.

The Entering Students.

A few words to the entering students I think is always regarded as an essential part of this address, and a good deal of space has been given in many previous addresses to things like your food, and your clothes, your recreation, and games. I am sure the food you require is that which you like to have, and as for your dress, I regard the modern girl as well and sensibly dressed as it is possible for her to be. The only thing I feel inclined to say to you on this point is, do not let anyone persuade you to wear your skirts longer than you do at present. They are both beautiful, graceful, and really useful, as well as being economical. It is now quite an ordinary thing to study medicine, and very rarely do women doctors not find plenty of work to do. But in spite of the ordinary young woman, as the ordinary young man, taking up the profession of medicine women doctors have still to be a bit better than men of the same standing. They must be equipped, not only with the best theoretical knowledge, but with infinite patience, forbearance, business ability, tact, good health, energy, and courage. They must familiarise themselves with political, economic, and social conditions. At the same time, do not be discouraged if you make mistakes—everyone makes bad mistakes—and they learn far more from them than from all their successes. At the same time, if you start in general practice, as I hope a very large proportion of you will do, that you will probably lead a rather solitary life in a town where there are 20 men doctors to one woman, and that any mistake you make will be handed round the town and be magnified 20 times more than any one of their blunders.

Women must be loyal to each other. It is a great thing for you at this school that so many of your professors and teachers are at the top. It is one of the disadvantages of the co-education schools that most of the people at the top are men. This brings on an undue state of humility with women students, and makes them unable to visualise themselves at the top, at which we ought all to aim. Disloyalty to women takes place where women compete with women for the favours of men, as in love, and where women compete with men for the favours of men, as in our profession. The French say it is men who make women dislike one another, and there is a Latin author who says, "Nothing is more unbearable than a woman with a full purse," and especially is this so when she has made it full by her own exertions. Do not let your loyalty to anyone be mere servility. It is no good truckling to anybody. Never be afraid of what people think of you. Do what you honestly think is right and leave it. Realise that you are human beings first, and women afterwards. Only as you do this will you attain that perfect freedom which we should all have as our aim, both for ourselves and for others.

WESTMINSTER HOSPITAL.

F. N. KAY MENZIES, M.D., F.R.C.P.,
MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER FOR THE COUNTY OF LONDON.

THE LOCAL GOVERNMENT ACT, 1929.

SIX months from to-day (Oct. 1st) an Act of Parliament will come into full operation known as the Local Government Act, 1929. This Act may truly be described as one of the greatest and most revolutionary advances in public health and social administration which has occurred in this country for over 100 years.

The portion of the Act to which I refer may be quite briefly summarised as follows: The Act transfers to the London County Council, on and after April 1st, 1930, the whole of the medical services, indoor and outdoor, of the poor-law guardians of London, and the whole of the powers and duties of the Metropolitan Asylums Board.

That means in effect transferring to one public authority—viz., the L.C.C.—over 100 public hospitals and institutions for the treatment of the sick, containing about 50,000 beds. Now, inasmuch as the L.C.C.

already provides over 20,000 beds for mental cases in their mental hospitals, and a large number of other beds in a variety of hospitals for various diseases, it will mean that the L.C.C. will have under its own direction and control no less than 75,000 beds, dealing with every variety of disease. That is, about five times as many hospital beds under one public authority as there are to-day in all the voluntary hospitals in the whole of London.

[Dr. Menzies traced the evolution of public health administration in this country during the last hundred years and pointed out that it had proceeded along certain lines of definite logical sequence. There was first communal health, or environmental hygiene, as exemplified by housing, water-supply, sewage and refuse disposal, infectious diseases, and so forth, and then came personal or individual health, as exemplified by the tuberculous patient, the V.D. patient, the orthopædic patient, maternity and child welfare, and the midwife. Moreover, the poor-law authorities of this country had, from the time of Elizabeth, been concerned with the relief of destitution, either in the form of cash or kind, or by means of institutions—viz., workhouses. Poor-law guardians relieve destitution—they have no choice. If a sick poor person could not obtain the medical attention he or she required elsewhere, the poor-law guardians had to provide it—even if the poor-law hospital or infirmary was overcrowded. Voluntary hospitals, on the other hand, made their own selection of cases, and were under no legal obligation to take in any particular patients. He continued:]

The great bulk of hospital treatment of the sick in this country is provided by poor-law guardians out of rates, and by the public health authorities out of rates and taxes, and not by voluntary hospitals—e.g., 350,000 beds in England and Wales, compared to 50,000 in voluntary hospitals—and in London 75,000, compared to 14,000. Not only all these hospital beds are provided and paid for out of rates and taxes, but they are in existence now, and have been for many years past. The London County Council, therefore, is not going, as some people seem to think, to create an entirely new public hospital service in connexion with its duties under the Local Government Act, 1929, but is simply taking over and centralising under one authority what is actually a going concern to-day, and humbly hoping to improve it.

Public opinion has long rebelled against the principle that a person who is technically "destitute," owing to sickness, must, if he is treated by the poor-law guardians, be regarded as a "pauper," and public opinion has prevailed at last. The agitation in favour of transferring the duties of the poor-law guardians with regard to the treatment of the sick to the public health authorities has been going on for over 25 years, and has only now, in the Local Government Act, 1929, been satisfied. The great change which will shortly come about in London and elsewhere is based, not on any mere sentimental whim or political prejudice, but upon the recognition of a principle that if a person is sick and is in need of treatment, and for any reasons he or she is unable to obtain it, then it is the business of the health authority to provide it.

The Effect on the Voluntary Hospitals.

There is a great fear, and a very natural one, that in some way or another the voluntary hospitals of this country will be adversely affected. Those who say that their days are numbered base this fear mainly on the belief that voluntary sources of income will gradually disappear, with the result that in time they will either be bound to receive large financial grants from the public health authority or close their doors. There are others who believe wholeheartedly in the continued generosity and financial support from the charitable public, with possibly some modification or adaptation to meet new conditions—such as massed weekly contributions from working men and women, or some organised form of voluntary sickness insurance, or the conversion of a larger proportion of beds into pay-beds on a higher scale of fees, or a combination of all these and others I have not mentioned.

There is very little, if any, practical experience to help us in making any forecast or coming to any decision on this extremely difficult and perplexing problem. I know of no reason, at all events in London, why there should be anything else but cordial and harmonious coöperation for the common purpose of promoting the welfare of the sick of this great metropolis, and, moreover, if such coöperation were properly established in London, it would be a great example to the rest of the country, and would have far-reaching beneficial reactions throughout England and Wales. For over 20 years past the policy of the London County Council has been cordial coöperation with the voluntary hospitals of London; the Council has continuously and consistently sought the assistance of voluntary hospitals; at the present moment about £150,000 per annum is spent by the Council in financial grants to voluntary hospitals and voluntary committees in payment for work done on behalf of the Council.

Conclusion.

The London County Council and the members of their medical staff will be called upon very shortly to undertake the greatest responsibility which any single public authority in this world has ever been asked to shoulder. The administration, efficiently and economically, of a hospital organisation containing over 75,000 beds is a stupendous task.

If this task is going to be carried out successfully we shall need the cordial sympathy and wholehearted support of all those who are genuinely interested in the care of the sick. The prestige and good name, not only of the Council, but of London is at stake. All right-thinking persons in every section of the community desire to make our hospital service, both public and voluntary, even more efficient than it is. Therefore, this is emphatically not a time for dissension between the public and voluntary hospital services. It is emphatically a time for coöperation to the best of our ability for a common purpose.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified: Surg. Comdrs. R. A. Brown and J. F. Ainley to *Egmont*, for R.N. Hospital, Malta; Surg. Lt. J. G. Currie to *Tamar*, for R.N. Base, Singapore.

ROYAL ARMY MEDICAL CORPS.

Maj. M. B. H. Ritchie to be Lt.-Col., vice Lt.-Col. and Bt. Col. W. R. P. Goodwin.

Maj. T. H. Twigg is seed. for serv. under the Colonial Office.

J. M. Gibson to be Lt. (on prob.).

ARMY DENTAL CORPS.

Capt. A. R. Inglis to be Maj.

G. A. Ballantyne, late Capt., A.D. Corps, to be Capt.

INDIAN MEDICAL SERVICE.

Majs. to be Lt.-Cols.: R. F. D. MacGregor, A. L. Sheppard, P. K. Gilroy, J. A. A. Kernahan, M. L. C. Irvine, E. W. O'G. Kirwan, and G. L. Duncan.

Capts. to be Majs.: Shankar Lal Patney, Dwijendra Nath Bhaduri, Raghunath Ganesh Dani, P. F. A. Grant, and Coimbatore Subramania Venkataramanan.

The undermentioned appointments are made: To be Capts. (on prob.): Capts. R. L. Frost and K. S. Fitch. To be Lts. (on prob.): W. McAdam, W. McCoach, G. G. M. Davis, D. H. Waldron, E. P. N. M. Early, and E. B. Eedle. To be Temp. Lts.: Khurshed Jilani.

Lt.-Col. M. L. C. Irvine retires.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Reorganisation of Health Services.

THE Department of Health for Scotland has lost no time in issuing directions to the local authorities for preparing their schemes of reorganisation. In a circular dated Sept. 19th the Department analyses the leading powers of the new Act, and promises special circulars later on infectious diseases (including tuberculosis) and venereal disease, milk-supply, unsound food, food and drugs, maternity service, and child welfare and school health administration Meanwhile, in concert with the Scottish Office, it gives general directions for applying the Act in the localities.

The new Act will not come into operation until May 16th of next year, but the circulars are intended to enable local authorities to master the difficulties of detail that are certain to develop between the town councils and the other authorities within the cities, and between the county councils and the burghs within the counties. Only a special study of the duties of these bodies could make intelligible the amount of detail to be adjusted and readjusted. It is enough to say that the health circular emphasises the elements involved in a unifying of the health service under the single authority. One of the chief difficulties will be the incorporating of the school health services with the others. The circular says:—

"The relationship between the public health committee and the education committee, and the division of functions between those committees, will have to be worked out in detail in the light of experience. Meantime, it should be kept in view that the school medical service as a health service should be definitely linked up with the other health services. Such an arrangement will facilitate the development of the service for the pre-school child. On the other hand, the full benefit of a scheme of medical inspection will not be secured unless the school health service is closely associated with education in order that the general principles of hygiene may be applied to the scheme of education, and that in particular all questions affecting individual children may be clearly considered from the educational point of view. The medical officer of health or a special medical officer on his staff must keep in close touch with the development of all schemes of education, and exercise his influence in moving policies in such a way as to secure for the child the best possible conditions for his proper physical and mental development."

Probably the major problem will be the reorganisation of the hospital facilities. The policy of the Department has been expressed in the Mackenzie Committee's Report—namely, complete co-operation between all the hospitals within the district as well as with the teaching medical schools.

"The ultimate object of any hospital policy," says the circular, "must be to bring a complete and efficient hospital service within the reach of all. The Mackenzie Committee considered that this could best be obtained by the full development of both voluntary and public authority services working in co-operation. With this view the Department are in full agreement, and they have noted with pleasure that since the publication of the Mackenzie Committee Report there has been increasing readiness on the part of public authorities and voluntary hospitals to enter into co-operative arrangements. Hitherto the duties of local authorities in the provision of hospital beds under maternity service and child welfare schemes, and schemes for the treatment of venereal diseases, have in many cases been discharged through the agency of voluntary hospitals. Similarly, voluntary institutions provide a good deal of accommodation for tuberculous patients, more especially for non-pulmonary cases. It is probable that in the less populous areas this method may continue to be the most effective way of meeting the need for the provision of additional accommodation, and its desirability is indicated where such an arrangement facilitates the provision of one effective hospital unit, and obviates the building of a number of small units.

"In other areas it may be found expedient that the local authority should itself provide the accommodation, but whichever course is followed, the essential point is that there should be an agreed policy between the local authorities and the managers of the voluntary hospitals.

"Section 27 provides safeguards to ensure that local authorities take reasonable steps to secure co-operation with the voluntary hospitals and the medical schools serving the area of the authority. It is of the first importance that the development of hospital services in every area should be a matter of agreement between the public authorities and the voluntary hospitals. The machinery for securing contact between the public authorities and the managers of voluntary hospitals has been provided by the setting up of regional committees by the voluntary hospitals. A regional committee has been established for each of the four areas centring round the medical schools of the four universities, and a fifth regional committee has been established for the northern area. The machinery for co-ordination has been completed by the appointment of a Central Liaison Committee representing the voluntary hospitals, which will act in liaison between the five regional committees and the Department. The Department consider that the councils will be well advised to make touch with the appropriate regional committee at the earliest possible moment."

The principle of unification extends to diagnostic and treatment clinics as well as to hospitals. For diseases other than infectious, powers of recovery of the costs of treatment are conferred by the Act, but the Act does not require a local authority to make recovery. The view of the Department is, as in the case of maternity service and child welfare, that recovery should not be enforced to an extent that will discourage persons in need of treatment from obtaining it.

Transfer of Poor-law Functions.

Two circulars, dated Sept. 23rd, have also been issued detailing the necessary duties to be transferred from the poor-law to the local authority.

The transfer of the duties performed under the poor-law is even more difficult than the consolidation of health services, and there the question of settlement emerges. The local authorities may provide that any assistance that may be granted either under the Poor-law Acts or under any other Act, shall in future be wholly provided under such other Act, and thus be taken out of the category of poor relief. The town clerk of Edinburgh, however, in an elaborate report submitted to the town council, points out that if the assistance is given under the poor-law, the amount of the assistance given can be recovered from the authorities of other areas, where under the law of settlement liability attaches to these other authorities. But no such recovery can be made where the assistance is not given under the poor-law. Accordingly, if the conditions under which assistance is given in Edinburgh are regarded as more favourable to the recipients than in other areas in Scotland, the tendency may be to attract people to Edinburgh who would not otherwise come, and thus impose upon the Edinburgh ratepayers the burden of assisting persons who do not belong to the city.

In his report the town clerk makes suggestions for a highly specialised system of committees. He says:—

"Many members of local authorities and other persons interested in public administration have recognised that, through the force of circumstances and the pressure of business the Town Council of the future must become more and more a deliberative and less and less an administrative body. The Town Council on this view will, in short, become something of the nature of a Parliament—the local parliament for the City of Edinburgh. It will then concern itself mainly with policy and the general direction of affairs, and it will be left, as far as possible, to Committees to carry that policy into effect and to attend to all the details of administration. Where the duties are so many and so varied it is apparent that each councillor cannot be expected to keep in close touch with every subject which comes before the Council. Individual members of Council, while having a general cognisance of the direction of the policy of each department, will require to specialise in particular branches of municipal administration. It would seem that a system of devolution of duties would greatly assist this process of specialising."

From all these documents it begins to be clear that a genuine revolution in administration has now begun. One main result will be a reduction in the

personnel of the administrative bodies and an increase in the responsibility of the chief officials.

The New Chancellor of Glasgow University.

Sir Donald Macalister, retiring Principal of the University of Glasgow and President of the General Medical Council, is to be nominated as Chancellor of the University. By Sir Donald's friends all over the world this nomination will be received with the warmest good feeling. Only those who are familiar with the administration and growth of the Scottish universities can even approximately estimate the value of his services to Glasgow. It is not only that he has succeeded in establishing a large number of chairs and lectureships but that he has done so, all along, in the light of universal culture. It would be difficult to name from any country a man of greater accomplishment, and after a long and strenuous life he comes into this honour because of his sheer fitness for the post.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Abdominal Tenderness and Unnecessary Operations.

FOR some time Dr. J. B. Carnett, professor of surgery in the University of Pennsylvania, has denied [1] the validity of the doctrine, enunciated by Head and Mackenzie, that cutaneous areas of hyperæsthesia are related to visceral disease. The disease known as chronic appendicitis he declares to be non-existent, saying that nobody has ever described a syndrome characteristic of chronic appendicitis which he is not able to demonstrate in dozens of cases that have had the appendix removed. Parietal tenderness is, he says, due to parietal neuralgia, and is the cause of hundreds of unnecessary operations. Where it is found in the right upper quadrant the gall-bladder is attacked, when in the right lower quadrant the appendix or the tubes or the ovary. Patients are seen showing as many as five abdominal scars who still complain of the original tenderness and pain. It is true that very many of these patients are of a neurotic type, but their suffering is none the less real.

To distinguish parietal tenderness from that due to genuine deep-seated disease Dr. Carnett has developed a technique of his own. The patient's abdomen is first palpated in the ordinary way and the tender area or areas are observed, together with the degree of pressure required to cause pain. The patient is then asked to blow up the abdomen. When the muscles are thus made voluntarily rigid, tenderness will not be elicited in deep-seated disease, because the damaged area will be protected; parietal tenderness, on the other hand, will be as readily elicited as before. Another test is to seize a portion of the skin and fat between the thumb and forefinger and apply increasing pressure. The full force of this squeeze may cause discomfort but will not evoke pain in the absence of a neuralgia. In the neuralgic subjects, however, a very gentle squeeze will often suffice to make them wince. The areas of tenderness will be found to correspond to the peripheral distribution of nerves. If the lower quadrant is affected tenderness will also be found for the breadth of two fingers below Poupart's ligament (ilio-inguinal nerve) and also over an area of the buttock above a line joining the trochanters (ilio-hypogastric nerve). This anatomical distribution of tenderness assists the differential diagnosis and also excludes malingering. The neuralgia may result from toxæmias, from herpes zoster, and from injuries or deformities of the spine. Lordosis is a common cause before 40, while arthritis is common in later life.

Recently I was privileged to attend one of Dr. Carnett's clinics. Most of the patients had already lost the appendix without any lasting relief from the symptoms for which they had suffered operation. Although Dr. Carnett had not seen them previously he was able to demonstrate his signs with complete success, the delimitation of "pinch tenderness" by areas of nerve distribution being quite striking. One could not help remarking that under the conditions of the clinic there was a possibility that suggestion might affect the patient's response, but this can, of course, be ruled out in private practice. Dr. Carnett's teaching is certainly heretical, but there are a few surgeons and a number of internists who believe that it contains an important measure of truth and that a considerable number of appendices are removed without justification. Whether peripheral or intercostal neuralgia is as common as Dr. Carnett believes, only the application of his tests by independent observers can show.

Tick Paralysis.

The common tick of the Rocky Mountains, *Dermacentor andersoni*, may be the carrier of several kinds of illness. There is the true Rocky Mountain spotted fever which closely resembles exanthematic typhus. There is a tick fever without exanthem, with apparently a shorter incubation period and a much lower fatality, which may or may not be a variety of the same disease. There is the quite distinct infection with *B. tularense*, and finally there is tick paralysis. A case of this rather uncommon affliction has lately been reported.[2] When first seen the patient, a boy of 10 years, had a temperature of 100° F. with rapid pulse and weakness. He was unable to walk, and when he tried to stand he had to be supported stiff-legged against the bed. Abdominal and patellar reflexes were absent. On the next day he was drowsy, unable to lift either leg from the bed or to raise his head. There was a partial ptosis of the left upper eyelid and diplopia. The temperature was subnormal. The boy was then bathed and a tick found on his back was removed. Within three hours he desired to get out of bed and did in fact get out of bed. The next day he appeared to be completely recovered. The rapidity of recovery from these severe symptoms, when once the tick is removed, appears to be typical of this particular tick disease.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Prof. Noorden's New Clinic.

DURING the past ten years or so the Municipal Board of Health has been systematically working to secure better health for Vienna and better treatment of the sick. Tuberculosis has been attacked at its very roots; slums have been destroyed, and over 40,000 light and airy dwellings have been handed over to the working-class population; a hospital for rheumatic diseases, with 350 beds, is in course of construction; three children's hospitals have been added to the city's institutions, and now Prof. Karl Noorden, who from 1906 to 1913 conducted the first medical clinic of Vienna University, has consented to take over a model department in the municipal hospital devoted solely to the study and treatment of metabolic disorders. He will have 50 beds and a staff of selected specialists at his disposal, and will advise the authorities on dietetic problems. His clinic will have a special kitchen where physicians, nurses, and cooks will get suitable instruction. It should be distinctly understood that Noorden's return to Vienna, which he left some years ago for personal reasons, is not due to his appointment to a university chair; his age, which is 70, would prevent such a call. The Municipal Board of Health, however, has thought it a considerable gain to have the coöperation of so important an authority, whilst Noorden, on his side, gets an unlimited opportunity

[1] THE LANCET, 1929, i., 32.

[2] Colorado Medicine, September, 1929, p. 326.

for further research, his position being quite exceptional. He will take up his work here early next year, and it is expected that his "school" for specialists will be a centre of attraction to medical men—and patients—from all parts of the world.

Infectious Disease in Austria.

A report by the Federal Board of Health shows that not a single case of typhus, small-pox, or cholera occurred in June–July. In the same period ten cases of encephalitis lethargica were noted and three cases of acute anterior poliomyelitis; other notifications of fresh cases being scarlet fever, 673 (3 deaths); diphtheria, 587 (12 deaths); typhoid fever, 155 (13 deaths); paratyphoid, 112 (7 deaths); epidemic encephalitis, 5 (1 death); puerperal fever, 26 (6 deaths); trachoma, 49; varicella, 351 (no deaths); and bites by suspected animals, 24 (no deaths). On the whole the health of the population was conspicuously good up till end of July, but since then there has been an epidemic of sore-throat both in Vienna and in many of the health resorts, in spite of the glorious weather we have enjoyed until quite lately. Ordinary colds, followed by otitis media and nasal sinusitis, are somewhat common at present in Vienna, perhaps because of the sudden exchange of an abnormally long heat-wave for cold autumn weather. Some observers think that the large incidence of respiratory infections is traceable to contamination of the water of swimming baths and ponds, which are frequented by enormous crowds of bathers. They hold that chlorine disinfection is not done as thoroughly as is desirable in hot weather.

Immunity to Syphilis.

At a recent meeting of the Vienna Society for Microbiology Dr. Prigge, of Frankfort, said that natural immunity to syphilis consists only in protection against the development of a primary lesion, and does not prevent invasion of the body by spirochætes. In animals apparently resistant to syphilis we see a general infection without symptoms, secondary and tertiary symptoms being sometimes visible much later. Kolle and his collaborators have shown in extensive investigations, lasting many years, that the immunity acquired by the rabbit through infection is not a true immunity. It is not transmissible passively, and the hope of obtaining a serum against syphilis is unjustified. Immunity takes 90 days to develop in the rabbit. The animals are then protected against the manifest effect of a reinfection with a homologous spirochæte; human beings, on the other hand, acquire immunity to heterologous organisms. In case of reinfection the resistance of the "immune" individual prevents the formation of a primary lesion (the chancre-immunity of Kolle), but allows the propagation and multiplication of spirochætes in the body, so that under certain favourable conditions aortitis, tabes, and general paralysis may be induced. Further research, said Dr. Prigge, is still badly wanted to clear up the problem of immunity against syphilitic infection.

The Symptoms of Rabies in Man.

Prof. Schweinburg, the director of the Lyssa Institute of Vienna, not long ago, at the invitation of the Vienna Medical College, gave an account of the chief symptoms of lyssa (rabies) encountered in persons bitten by infected animals. Apart from prodromal local pains at the site of the lesion, mental and nervous supersensitiveness, he said, appear early. The histological picture is that of a diffuse non-purulent encephalomyelitis, with infiltration round vessels and ganglia, the medulla oblongata being chiefly affected. Stimulation of any of the sense organs produces excessive responses. Breathing is difficult and oppressed, the muscles of the pharynx and œsophagus are over-irritable, and go into spasm with every effort of swallowing (hydrophobia). Later on the slightest tactile or sensory irritation (noise, light) produce twitching and spasms of the muscles of deglutition. These symptoms are never absent, and another constant symptom is ærophobia—i.e., spasms are elicited by a light blowing on the patient's face or by a draught of warm or cold air. On the second or third day very marked salivation appears; the quantities of saliva produced are so large that they are spread abroad by breathing or speaking. The temperature, at first normal, runs up toward the end to a very high level; in the blood count mononucleosis often develops, whilst the eosinophils and basophils disappear. After three days the excessive irritability of the central nervous system is exhausted, and the paralytic stage sets in. This is often rapidly followed by death, but sometimes the condition appears to improve, because the spasms disappear and the patients may take food, whilst supersensitiveness is absent. Paralysis of the heart, however, soon ends the patient's life. The paralytic type of lyssa, with absence of the spasmodic stage, is very rare in man—being perhaps relatively common in children—and a recurrent type is still rarer. No treatment is of any avail for manifest hydrophobia, for hitherto all inoculations or vaccinations have proved useless, and the same applies to various forms of chemical, biological, and internal medication. The only effective measure is preventive vaccination, lasting 13 days, and the mortality of such vaccination is now nil.

Obituary.

ERNEST EDWARD GLYNN, M.D. CAMB., F.R.C.P. LOND.,

LATE PROFESSOR OF PATHOLOGY, UNIVERSITY OF LIVERPOOL.

Ernest Edward Glynn died of diabetic coma on Sept. 22nd at Nerquis, near Mold, where he had been living in retirement since his health broke down in the autumn of 1927. He was born in 1873, the eldest son of Emeritus Professor T. R. Glynn, of Tremeirchion, who was for so many years professor of medicine in the University of Liverpool. Educated at Liverpool and at Clare College, Cambridge, Glynn qualified in 1898 and took his M.B. in 1901 and M.D. in 1908. In 1904 he became a Member of the Royal College of Physicians of London and was elected to the Fellowship in 1913. He intended originally to be a clinician and became an assistant physician to the Liverpool Royal Infirmary, acting at the same time as an assistant in the pathological department under Rupert Boyce. He proved such an efficient substitute during his chief's absences abroad, and when he was laid aside by illness, that in 1912 he succeeded him as Holt professor of pathology, and nominally gave up his clinical associations, though he was to the end at heart as much a medical man as an academic pathologist. Glynn was brought up in the broad outlook which includes morbid anatomy, bacteriology, and experimental pathology, and seeks to weave out of them a harmonious knowledge of disease. His students reaped the benefit to a singular degree and, as anyone knows who has acted as external examiner in Liverpool in recent years, they reached a standard of

PROF. GLYNN.

[*Photo by Medringtons, Liverpool.*

interest and knowledge which is quite exceptional. His methods may have been dogmatic; they gave at any rate a clear picture, and after all it is better for a student to have a crystallised scheme which is only partly right than an amorphous mass of muddy uncertainty. His influence and inspiration extended too beyond the undergraduate days of his men and, especially in the last few years, he had been remarkably successful in activating the younger graduates of his school.

Ernest Glynn took a keen interest in the growth of the Pathological Society of Great Britain and Ireland and was its honorary treasurer for many years. He attended its meetings regularly, and many of his contributions to pathological research took the form of communications to this society. He often joined in discussions at the Liverpool Medical Institution and showed there how closely he followed clinical medical progress. His catholic interests are shown also in the variety of topics which he advanced by his original work. To him is chiefly due the recognition of the association between adrenal tumours and sex change in women which has led to the diagnosis and cure of a number of cases, and one of the last things which interested him before he had to give up work was a remarkable example of precocious adrenal virilism in a male infant. Another matter of considerable importance which he, Dr. Howel Evans and their associates have recently developed is the increase in the number of platelets in the blood following operations, childbirth, and probably tissue injury in general which must have a good deal to do with post-operative thrombosis. In earlier years Glynn investigated the opsonic technique and brought forward the simple plan of counting bacteria in a hæmocytometer chamber which has been widely used. Dysentery bacilli, the pneumococcus and pneumonia, the meningococcus, and cerebro-spinal meningitis at one time or another had his effective attention; with lamb dysentery he was as energetic but less successful. An elaborate inquiry into the results obtained in the venereal clinic showed that the addition of mercurial treatment to a course of arsenicals was undesirable. It is no formality to say that scientific medicine will deeply feel the loss of Glynn just when he had reached the height of his productive powers.

Glynn was not married. He lived in the famous house, 62, Rodney-street, where Gladstone was born, with few interests beyond pathology and the motor-car which he drove so furiously. For the last few years of his life he was coping courageously with the disease which ultimately killed him.

LODGE MOOR HOSPITAL, SHEFFIELD.—Extensions to this institution were opened on Friday in last week by Sir George Newman, Chief Medical Officer of the Ministry of Health. The additions include two ward units and an isolation block. Each unit has two wards of 12 beds and two single wards, making a total of 26 beds. With the six wards in the isolation block the accommodation will thus be increased by a total of 58 beds. The one-storey buildings are arranged in V-shape to obtain the maximum of sunshine, and the central duty room is so placed that there is a clear view of every bed in the unit. The extension is part of a larger scheme, upon which work has already been begun.

CHARING CROSS HOSPITAL.—The annual report repeats the claim that this is the lowest in cost per bed of any London hospital. Its 4039 in-patients cost £12 2*s*. 7*d*. each for an average stay of 21 days, and there were 27,689 new out-patients who cost an average of 7*s*. 4*d*. each. There was a surplus of £3000 of income over expenditure, and there is no debt. The site and buildings of the Westminster Ophthalmic Hospital, which were bought for £70,000, will shortly be available, and of the £100,000 which will be the total cost of purchase and equipment, all but £11,000 had been obtained at the end of December last. Owing to the increase in the number of accident cases it will shortly be necessary to enlarge the casualty department. When this has been accomplished attention will be turned to the provision of a new nurses' home elsewhere, thus releasing the Chandos-street block for private paying patients.

Correspondence.

"Audi alteram partem."

RELATION OF THE TONSILS TO RHEUMATIC CONDITIONS.

To the Editor of THE LANCET.

SIR,—The remarks of Mr. Macleod Yearsley in your last issue appear to sum up the general consensus of opinion upon the rôle of the tonsils in acute rheumatism and allied conditions. I have had the opportunity of removing by enucleation large numbers of tonsils for these conditions, having excised all septic tonsils at three large hospitals wherever acute rheumatism, chronic rheumatism, cardiac disease, or chorea were discovered; also for septic eye conditions and tuberculosis more recently. I have, of course, strictly confined myself to unhealthy tonsils, the combination of secretion from the follicles and the circumfaucial infection-ring being my test of a septic tonsil. Septic teeth have been cleared in all cases. I can state very definitely that the perfect "T and A enucleation" does not prevent acute or chronic rheumatism or chorea, though the patient is all the better for the operation (overlooking one unfortunate stirring up of a septic endocarditis). This is especially so in the case of chorea, where many patients have lost their tonsils previously and elsewhere, or may be admitted with a recurrence.

My object in writing is to ask, Can we expect to affect acute rheumatism or chorea by removing the faucial and nasopharyngeal tonsils, whilst leaving behind the lingual tonsil—often visibly septic, and certainly a source of trouble in the upper respiratory tract? Have any of your readers experience of the inclusion of the lingual tonsil in the enucleation operation as a routine? Its complete enucleation is difficult and may give rise to secondary hæmorrhage in a situation difficult to deal with; but to leave it is to leave what in my opinion has been the cause of much infection.

I am, Sir, yours faithfully,

Manchester, Sept. 27th, 1929. WILLIAM WILSON.

To the Editor of THE LANCET.

SIR,—I am in complete agreement with Mr. Macleod Yearsley in his belief that the most frequent source of rheumatism, septic tonsils and septic teeth, lies in the toxæmia which results from chronic intestinal intoxication—so far, that is, as the chronic form of rheumatism is concerned. I do not know enough about the acute to discuss it. I also agree with Mr. Yearsley's opinion that apart from a certain general improvement that must necessarily accrue from the removal of a definitely septic focus, tonsillectomy has no influence upon the incidence or cause of any rheumatic condition, either acute or chronic. My belief that chronic rheumatism is merely a symptom of intestinal stasis or chronic autotoxæmia from the bowel is based on personal observations extending over a period of nearly 20 years. In chronic rheumatic states I have seen cases innumerable where tonsils have been expertly enucleated, and yet the rheumatism has persisted. I have also seen many mouths swept clean of all teeth with no real benefit to the rheumatism. I was therefore driven to the conclusion that there was another factor behind both septic teeth and unhealthy tonsils, and, as the result of treatment of the alimentary canal, I was further driven to the conclusion that here lay the source most likely producing the state existing in the teeth and in the tonsils, and certainly the source of the rheumatism.

I also found that practically every case of intestinal stasis (as proved clinically, by bacteriological examination of the fæces, and by a bismuth transit and a barium enema) was the possessor of unhealthy tonsils and in many cases of septic teeth. But as on

having the teeth and the tonsils removed the rheumatism still remained in statu quo, an active onslaught on the bowel was made. The result of this was that the teeth (I do not refer to chronic *apical* dental sepsis) with ordinary hygienic care cleared up and the signs of tonsillar infection greatly receded. What was more surprising was that the rheumatism vanished, even in cases regarded as almost hopelessly chronic. Treated *from the source of infection* I know of no condition that will yield more satisfactorily to correct treatment; the results are often dramatic in the, apparently, most intractable of cases. But the treatment must be complete and thorough.

I am, Sir, yours faithfully,

A. GRAHAM-STEWART.

Ulster-place, N.W., Sept. 28th, 1929.

VITAL STAINING OF NEOPLASTIC TISSUES.

To the Editor of THE LANCET.

SIR,—In his most interesting paper in your issue of Sept. 21st (p. 603) Mr. Burrows suggests one therapeutic application of the phenomena he describes. I venture to suggest another, capable of experimental proof or disproof. With present operative procedures for neoplastic diseases the excisions have, for well-known reasons, to be very extensive and encroaching widely into normal tissues. If such neoplastic tissues are capable of differentiation by the various dyes, the dye could be injected prior to operation and the actual infiltration into normal tissues could be determined on operation and, in many cases, the field of removal be considerably reduced. Other applications would be in cases of severe burns and senile gangrene to determine definitely the line of demarcation.

In a paper by Mogilnitsky and Podljaschux, shortly to be published in *Die Fortschritte auf dem Gebiete der Röntgenstrahlen*, these investigators have found that trypan-blue is retained in the brains of dogs and rabbits which have been submitted to X rays. X rays (and doubtless γ rays) are, therefore, to be added to the list of irritants cited by Mr. Burrows, and any experiments he has made in this relationship would be of interest. The retention of dye after X ray treatment might confirm the view, held by many radiologists, that the beneficial results of such treatment is perhaps only due to reaction of tissues to irritation by the rays.

I am, Sir, yours faithfully,

BERNARD LEGGETT.

Romford-road, Forest Gate, Sept. 28th, 1929.

THE IMPORTANCE OF THE LIVER IN CHEMOTHERAPY.

To the Editor of THE LANCET.

SIR,—The article by Dr. L. Cunningham and Dr. M. M. Datnow in your last issue (p. 652) confirms, in the main, the work of our cancer research team on the effect of colloidal metals on the liver. There are some points, however, on which we are not in agreement. It is stated that lead selenide, amongst some other preparations, has little action on the liver of animals, but we observe in Table I. that the incidence of jaundice after lead selenide is about the same as after "S7." In our monograph on "Chemotherapeutic Researches on Cancer" published in July, 1928 (of which copies were sent to the Liverpool Medical Research Organisation at their request), the changes in the liver and other viscera are briefly noted; focal necrosis in the liver after lead selenide is recorded there. We have repeatedly found the same changes after the administration of active colloidal preparations of lead, thallium and thorium, differences are of degree only.

There is a risk that readers of this article might conclude that the hepatic factor could be ignored during treatment with colloidal lead selenide, "D4S." We find that we cannot afford to ignore the liver. For some hours before and after administration of "D4S" we give a very light carbohydrate diet. We find that fat digestion progressively deteriorates and that jaundice is readily provoked by a diet rich in fats; this jaundice readily yields to a fat-free diet. The evidence offered for the taking up of the colloid by the cells of the reticulo-endothelial system in the liver is inconclusive. We find that much lead is to be found in the liver in man and animals, much more than is to be found in the neoplasm, but we are not convinced that it is stored in the cells of the reticulo-endothelial system. Very similar granules to those figured are found after administration of many of the electro-negative colloids, even after non-metallic ones, such as the trypan blues. It is thought that these particles are often hæmosiderin derived from hæmolysis and the hæmorrhages which so frequently follow administration of these colloids. We and others have tried to prove that these particles are lead, but cannot obtain certainty.

I am, Sir, yours, faithfully,

A. T. TODD.

Bristol Royal Infirmary Cancer Research Laboratories, Sept. 28th, 1929.

CONGENITAL ECTODERMAL DEFECT.

To the Editor of THE LANCET.

SIR,—In his article last week (p. 656) on congenital ectodermal defect, Prof. A. W. Falconer discusses the points of resemblance to "progeria." He refers to a case shown by Dr. Jean Smith (January, 1929) at the Royal Society of Medicine in which the diagnosis of progeria had been at first suggested. I venture to draw his attention to a case shown at the same Society in October, 1927, by Dr. C. F. Harris as one of progeria, which, however, was almost certainly not one of progeria but one of congenital ectodermal defect.[1]

I am, Sir, yours faithfully,

London, W., Sept. 28th, 1929. F. PARKES WEBER.

VACCINATION AND ENCEPHALITIS.

To the Editor of THE LANCET.

SIR,—I was much interested to read in your issue of July 27th (p. 185) the report of two cases of encephalitis supposed to be the result of vaccination against small-pox. In my vast experience in India this complication is unheard of. We do get, not seldom, a general or localised eruption similar to vaccinia, but this the vaccinated child, if kept clean, gets over in a couple of weeks' time. May the encephalitis be not due to some condition present in the vaccinated person particularly if vaccinated at an age beyond that of infancy or childhood as happened in these two cases? Is it because we practise vaccination in infancy that such complications as encephalitis are totally absent in this country?

I am, Sir, yours faithfully,

A. F. WINNINGTON DA COSTA.

Sept. 9th, 1929. Civil Surgeon, Bilasper, C.P. (India).

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

To the Editor of THE LANCET.

SIR,—In the issue of the *Times* of Sept. 27th, in which the composition of the Council of the British College of Obstetricians and Gynæcologists was set forth, my name was included in the list of Councillors. This was a mistake, and I should be obliged if you would publish this letter of correction.

I am, Sir, yours faithfully,

VICTOR BONNEY.

Devonshire-place, W., Sept. 28th, 1929.

[1] Vide the discussion on the case, Proc. Roy. Soc. Med., Section for the Study of Disease in Children, 1927–28, xxi., 15.

MEDICAL SICKNESS, ACCIDENT AND LIFE ASSURANCE SOCIETY, LIMITED.

To the Editor of THE LANCET.

SIR,—The annual general meeting of this Society will be held on Monday afternoon next, Oct. 7th. Three important resolutions, of which due notice has been given, are to be moved at this meeting, but have been withheld from the agenda on the notice calling the meeting. The members of the Society have thus not been made fully aware of all the resolutions on which a vote will be taken. Nevertheless the Board, on finding that the proposer of a resolution, making an age-limit for directors, had received proxies supporting his resolution, have now issued official proxies in their own favour. Official proxies have to my knowledge never been sent out before. Last year when the re-election of a director was contested, the Board decided that it would not be justified in incurring the expense of sending out proxies. How can they justify themselves in doing so this year? I submit that it is not fair dealing for the Board to attempt to get votes from members without giving them full information.

I am, Sir, yours faithfully,
HARVEY HILLIARD.

Hyde Park Gardens, W., Oct. 1st, 1929.

A CASE OF SEVERE SNAKE-BITE IN THE WEST OF ENGLAND.

To the Editor of THE LANCET.

SIR,—A woman was lately walking down some cliffs near Plymouth when she was bitten by a snake on the dorsal aspect of her foot. She immediately had it sucked and a tight handkerchief was put round her ankle. In five minutes, however, a large swelling had developed and she could barely struggle down to a boat to be conveyed back to Plymouth. In a quarter of an hour from being bitten the foot and ankle were very much swollen and she experienced a "tight" feeling across the chest and difficulty in respiration. Her lips swelled up, she began to vomit, and in half an hour she was completely collapsed with a choking feeling in the throat, due to some œdema of the glottis. She was practically pulseless, cold, and sweating; she had incessant vomiting and diarrhœa; her face and lips were swollen enormously and the whole leg was enlarged with a slight vesicular eruption becoming visible. She was given injections of adrenalin (which relieved the throat condition), strychnine, and pituitrin and large quantities of brandy to drink, and was moved to a nursing-home, where the wound was incised and a clot turned out. It was then evident that the wound had directly involved a small vein. Potassium permanganate was rubbed in locally and stimulant injections were continued until her pulse gradually returned six hours later. Within the next two days she rapidly improved; her pulse became normal and no rise in temperature was charted. The leg, however, continued to swell with pitting œdema, and femoral thrombosis was suspected. After four days the swelling suddenly gave way to blotchy discoloration, obviously due to extravasation of blood into the tissues. After this recovery was uneventful.

Does the English adder venom commonly cause any thrombosis directly, or does it produce endothelial damage leading to extravasation into the tissues?

I am, Sir, yours faithfully,
D. W. B.

Sept. 29th, 1929.

HOSPITAL FOR TROPICAL DISEASES.—The space liberated in the premises in Endsleigh-gardens by the removal of the London School of Hygiene and Tropical Medicine, which shared them with the Hospital for Tropical Diseases, is being utilised for the enlargement of the hospital. New wards, a pathological laboratory, and a clinical lecture theatre are being provided. In addition to treating tropical diseases, the hospital teaches medical men who intend to practise in the tropics and the students of the School of Tropical Medicine.

Medical News.

UNIVERSITY OF LEEDS.—At recent examinations the following candidates were successful:—

M.D.

R. Chester, M. S. Scott, and A. Sourasky.

FINAL EXAMINATION FOR M.B., CH.B.

Part I.—F. B. T. T. Drake, W. R. Everatt, G. Hirst, J. Rabinovitch, and M. I. Silverton.

Part II.—W. H. Craven, H. Denton, C. H. Foster, W. L. Hardman, J. N. Mill, L. Hoyle, C. Poniedel, S. Rosenberg, L. Seaton, W. E. Smart, E. J. Wayne, and J. W. Whitworth.

Part III.—*E. J. Wayne, †C. H. Foster, †W. L. Hardman, T. G. Clarke, H. Denton, S. K. Foster, W. Greaves, L. Hoyle, H. T. Knowles, C. Poniedel, Margaret F. Robertson, Mary G. Shawe, and J. W. Whitworth.

* First-class honours.
† Second-class honours.

D.P.H.

Kathleen M. Peacock and Edith A. Whitney.

D.P.M.

C. L. Copeland, W. Fraser, D. T. Gemmell, and J. J. O'Riordan.

FINAL EXAMINATION FOR L.D.S.

Part II.—J. Dobkin, J. W. B. Hargreaves, and Margaret E. M. Hey.

The William Hey Medal for the most distinguished medical graduate of the year has been awarded to Mr. Edward Johnson Wayne. Mr. Wayne has also been awarded the West Riding Panel Practitioners' Prize for proficiency in Medicine.

UNIVERSITY OF LONDON: *Forthcoming Lectures.*—Fixtures for the coming session include five lectures on Blood Plasma and Platelets, by Mr. J. W. Pickering, D.Sc., at King's College, at 5 P.M., on Tuesdays, from Oct. 8th to Nov. 5th; four lectures on the Physiology of the Fœtus, by Dr. A. St. G. Huggett, at St. Thomas's Hospital Medical School, at 5 P.M., on Tuesdays, from Oct. 8th to 29th; four on Secretion of the Digestive Juices, by Dr. R. J. Brocklehurst, at University College, at 5 P.M., on Mondays, from Oct. 14th to Nov. 4th; three on (1) Seasonal Variations of Epidemic Diseases, (2) Milk Epidemics, and (3) Diphtheria Toxin and Antitoxin, by Prof. Thorvald Madsen, of Copenhagen, at the London School of Hygiene and Tropical Medicine, at 6 P.M., on Oct. 14th, 16th, and 18th; four on the Metabolism of the Carbohydrates and Fats, by Mr. J. A. Hewitt, D.Sc., at King's College, at 5 P.M., on Thursdays, from Oct. 17th to Nov. 7th; and six on Human Nutrition, by Prof. V. H. Mottram, at King's College for Household and Social Science, at 5 P.M., on Fridays, from Oct. 18th to Nov. 22nd. Admission to these lectures is free, without ticket.

University of London: University College.—A farewell dinner to Sir Gregory Foster, who retires from the position of Provost of the College on Dec. 31st, will be given by past and present students on Friday, Dec. 20th, at a place in London to be determined later. Those who wish to attend are asked to inform Mr. B. N. Parker, hon. secretary, Old Students' Association, at the College, without delay, adding particulars of their Faculty and dates of student years at the College.

Mr. F. E. Smith, D.Sc., F.R.S., Director of Scientific Research at the Admiralty, has been appointed Secretary to the Committee of the Privy Council for Scientific and Industrial Research, on the resignation of Mr. H. T. Tizard, F.R.S.

CLINICAL LECTURES AT MAUDSLEY HOSPITAL.—A course of clinical lectures will be given at the Maudsley Hospital, Denmark Hill, London, S.E., from Oct. 28th, at 2.30 P.M. daily, except Saturdays. The lecturers will be on Mondays, Dr. A. J. Lewis, on Mental Symptoms and their Genesis; on Tuesdays, Dr. T. Tennent, on Nervous Disorders in Children; on Wednesdays, Dr. Edward Mapother, on Neurotic and Psychotic Syndromes; on Thursdays, Dr. J. S. Harris, on Relations of Mental Disorder to Physical Conditions; and on Fridays, Dr. F. L. Golla, Captain S. A. Mann, and Mr. C. Geary, on the Pathology of Mental Disorders, Laboratory Methods and their Place in Diagnosis, and the Pathology of the Nervous System, respectively. In addition, a discussion on cases in the hospital is held in the wards every Monday, Tuesday, and Thursday at noon, all these lectures and discussions being open to medical practitioners without fee. A course for the Diploma in Psychological Medicine will begin in January Inquiries should be addressed to the Director of the Central Pathological Laboratory at the hospital.

ROYAL DENTAL HOSPITAL OF LONDON: *School of Dental Surgery.*—Dr. Boyd S. Gardner, of the Mayo Clinic, Rochester, U.S.A., will give a lecture at this School in Leicester-square on Monday, Nov. 4th, at 6 P.M. His subject will be "the relationship between medicine and dentistry, emphasising the routine use of the X ray from both a pre- and post-operative standpoint; the necessity of an improved extracting technique, and the significance of laboratory investigation."

Mr. Arthur Greenwood, Minister of Health, has appointed Mr. S. F. S. Hearder to be his assistant private secretary. Miss Susan Lawrence, Parliamentary Secretary to the Ministry of Health, has appointed Mr. G. C. North to be her private secretary; and Mr. E. R. Forber, Deputy Secretary to the Ministry, has appointed Mr. E. C. H. Salmon to be his private secretary.

ROYAL ALBERT INSTITUTION EXTENSION.—The foundation-stone of a new building to be called the Welch Memorial Home was laid on Sept. 27th by Lord Richard Cavendish, Chairman of the Central Committee. This new addition to the Royal Albert Institution at Preston will cost about £10,000, and will provide accommodation for about 50 senior boys, together with the staff. It will commemorate the late Mr. William Gibbins Welch, of Hampson, Lancaster, who was associated for half a century with the management of the institution.

LONDON MEDICAL EXHIBITION.—The exhibition will be held this year at the new hall of the Royal Horticultural Society, Greycoat-street, Westminster, London, S.W., during the week beginning on Oct. 14th. It will be open daily from Monday to Friday inclusive from 12 noon till 6.30 P.M. The exhibition has now been an annual fixture for a quarter of a century, but the organisers, who managed the exhibitions of the Seventeenth International Congress of Medicine, 1913, and the Fifth Clinical Congress of Surgeons, 1914, anticipate that this year's show of drugs and surgical appliances will be the largest yet held. One attraction will certainly be the size and convenience of the new hall in which it is to be held, for all exhibits will be on one level and well lighted. Admission will be confined to doctors, for whose recreation tea and orchestral music will be provided in a spacious reception room overlooking the hall. Practitioners who have not received invitation cards can obtain them on application to the Secretary, the London Medical Exhibition, 194–200, Bishopsgate, London, E.C. 2, or at the hall during the exhibition week.

DONATIONS AND BEQUESTS.—Mr. Keith R. Maitland, W.S., of Edinburgh, left, subject to a life-rent, £2000 each to the Royal Infirmary, Edinburgh, and Royal Edinburgh Hospital for Sick Children; £1000 each to the Convalescent House, Murrayfield; Royal Edinburgh Hospital for Incurables; Royal Blind Asylum and School, Edinburgh; Governesses' Benevolent Society of Scotland; Society for Relief of Indigent Gentlewomen of Scotland; and Queen Victoria's Jubilee Institute for Nurses (Scottish branch).—Mr. John Thomas Chadwick, of Beech-road, Stockport, left, on the death of his sisters, £3000 to Stockport Infirmary and £1000 each to Stockport Working Lads' Association, Stockport Sick Poor and Private Nursing Association, Stockport Institute for the Blind, Deaf, and Dumb, and St. Dunstan's Hostel for the Blind. The ultimate residue in trust for British spa treatment of poor persons, natives, or residents of Stockport, suffering from arthritis, sciatica, rheumatism, neuritis, or gout.—Mr. Thomas Morgan, of the Woodlands, Treforest, Glamorgan, besides other bequests, left £1000 each to Pontypridd Cottage Hospital and to King Edward VII. Hospital, Cardiff.—Miss Margaret Cummings Innes, of St. Swithin's-street, Aberdeen, left £2000 to St. Dunstan's Hostel for Blinded Sailors and Soldiers; £1000 each to the Aberdeen Royal Infirmary, the Aberdeen Royal Hospital for Sick Children, and the Morningfield Hospital, Aberdeen, with some further residual interest.—Mr. Henry Bacon Atkinson, of Adelaide Mansions, Hove, and Knyveton-road, Bournemouth, left £500 to the Sussex County Hospital, and £100 each to the Sheffield General Infirmary, the Sheffield Institute for the Blind, and the Sheffield Royal Hospital and Dispensary.—Mr. James Fleming Fyfe-Jamieson, of Ruthven, Perthshire, left a legacy of £1500 to endow a bed, called the Fyfe-Jamieson bed, in Viewpark Nursing Home, and £5000 to charity.—Mrs. Anna Nockold, of Goffs Oak Villa, Cheshunt, Herts, left over £13,000 to various institutions, including £2000 to Dr. Barnardo's Homes, and £2500 each to the London Temperance Hospital and the Blinded Sailors and Soldiers After-Care Organisation (St. Dunstan's, Regent's Park).—Bequests of over £34,000 were left to charities by the late Mr. Alexander Fowler Roberts, of Fairnilee, Galashiels, manufacturer, including £5000 to the Edinburgh Royal Infirmary and £2000 to the Longmore Hospital, Edinburgh.

THE Minister of Health has appointed a Departmental Committee "to inquire into the administration of the laws relating to the relief of the casual poor and to make recommendations having special regard to the assistance of persons genuinely seeking work and to persons suffering from physical or mental disability." The members of the committee are: the Rev. L. R. Phelps (chairman), Mr. J. A. Dale, Mr. Douglas Hacking, M.P., Sir Arthur Lowry, Dr. A. C. Parsons, Mr. A. Paterson, Mr. A. Shepherd, Mrs. Wintringham, J.P., with Mr. L. N. Ure, of the Ministry of Health, as secretary.

ROYAL MEDICAL BENEVOLENT FUND.—A service in aid of this fund will be held at Liverpool Cathedral at 3 P.M. on Oct. 13th. The Rt. Rev. E. C. Pearce, Bishop of Derby, will preach the sermon, and the Lord and Lady Mayoress will attend. Doctors and their friends are invited to this service. Tickets may be obtained from the local hon. secretary, 28, Rodney-street, Liverpool.

At the two recent meetings of the committee £855 was voted in grants to 64 applicants, and £537 was voted in annuities to 20 beneficiaries over 60 years of age. The following were some of the cases helped with annuities:—

M.R.C.S., aged 79, who owing to deafness and age is unable to follow his profession. His wife's savings have been exhausted by the claims made upon him by his family, and his only income is £52 a year contributed by two nephews. Voted annuity of £70.

L.R.C.P. & S., aged 79, whose savings have all been exhausted. She is the inmate of a home where she has to pay rent of £19 10s. Her only income is the Old Age Pension £26. Voted annuity of £36.

Widow of F.F.P.S., aged 75, who lives with her married daughter whose husband is a Post-office sorter. The widow pays £32 10s. a year to her daughter for board and lodging and her income is Old Age Pension £26. Voted annuity of £26.

Widow of M.B., aged 68, whose daughter is earning 30s. a week and who contributes £52 a year to her mother being her only income. Voted annuity of £26.

Widow of M.R.C.S., aged 74, unable to work owing to her age and has only the Old Age Pension. Voted annuity of £26.

Daughter of M.R.C.S. aged 69. Has an income from investments of £34 a year. Voted an annuity of £25.

Subscriptions and donations should be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—The Mary Kingsley Medal, which is conferred in recognition of distinguished scientific achievement, has been awarded to Dr. G. Carmichael Low, Senior Physician to the Hospital for Tropical Diseases, London; Dr. Guy A. K. Marshall, Director of the Imperial Bureau of Entomology; Emeritus Prof. Robert Newstead, F.R.S., formerly Dutton Memorial Professor of Entomology in the Liverpool School of Tropical Medicine; Dr. A. T. Stanton, Chief Medical Adviser to the Secretary of State for the Colonies; Emeritus Prof. J. W. W. Stephens, F.R.S., formerly Professor of Tropical Medicine in the Liverpool School of Tropical Medicine; and Dr. C. M. Wenyon, Director-in-Chief of the Wellcome Bureau of Scientific Research. The medals will be presented by the chairman of the School, Sir Frederick Bowring, at a banquet in Liverpool on Friday, Oct. 11th.

ST. BARTHOLOMEW'S HOSPITAL DINNER.—The annual dinner of Old Students was held in the Great Hall of the Hospital on the evening of Oct. 1st, with Sir Frederick Andrewes in the chair, the size of the gathering being favourably influenced by the post-graduate course on radium which is in progress at the school. To many of those who attended the Hall itself was almost a novelty, for not only had electric light been installed, but the floor had been relaid and the ceiling redecorated as part of the work of general reconstruction which is going on throughout the hospital precincts. The dinner itself, which was largely attended, was of the usual domestic character, but the absence of a toast list did not prevent the treasurer, Lord Stanmore, from proposing "The Chairman," a toast which was drunk with musical honours. In reviewing the main events of the year Sir Frederick alluded with regret to the unusual number of deaths of seniors, including Church, Duckworth, Cumberbatch, Bowlby, and Harding. He then turned to the attraction of the moment, the new surgical block nearing completion and to be opened early next year. It was, he said, the last word in surgical luxury, alike for surgeon, dresser, nurse, and patient. Every surgeon had a self-contained floor, his own theatre, and his own private room, and last but not least, gas and oxygen was laid on from the basement to every operating table. Only about one-half of the sum of £200,000 spent on this block was yet in sight, but the Hospital had done well so far during its period of reconstruction which began nearly 30 years ago with the new buildings for out-patients, pathology, and

nurses; for of the total £350,000 all but about £58,000 had been paid off in spite of the unfortunate reputation of being wealthy. An appeal would shortly be made jointly for the Hospital and College, the latter being now a corporate body capable of holding funds, although as yet wholly unendowed. He would like to see it able to pay adequate salaries and to subsidise research. As he sat down Sir Frederick's eye chanced on the panel which records the first gift made towards the building of the first wing of the present hospital in 1729, the donor being Sir Richard Brocas, Knight and Alderman, just two centuries ago. Besides the treasurer and the administrative staff of the hospital there were present as guests Sir Humphry Rolleston, Air Vice Marshal D. Munro, the Masters of the six City companies, and Mr. T. A. Lodge, the architect of the new surgical block.

WESTMINSTER HOSPITAL DINNER.—On Oct. 1st about 130 past and present students dined together at Grosvenor House, Park-lane, under the genial chairmanship of Mr. Stanley Dodd, who was supported by Sir James Purves-Stewart, Dr. F. N. Kay Menzies, Dr. A. S. Woodwark, Dr. F. F. Bond, Dr. Florence Barrie Lambert, Mr. de Salis (chairman of Springfield Mental Hospital), and Mr. A. E. W. Marshall. Mr. Marshall proposed the toast of the Medical School, of which he is chairman. He praised the energy of their dean, Dr. Woodwark, in organising post-graduate courses which were widely appreciated, especially those on radium. Dr. Woodwark, in response, said the hospital was now starting on its 210th year and the school on its 96th, and that last year it had its record number of students. A great event during the year was the acquisition, mainly through the kindness of Mr. Woolf Barry, Colonel Bulkeley, and Dr. Reginald Worth (medical superintendent of Springfield Mental Hospital) of a fine sports pavilion which could be reached from the hospital in half an hour. The school was looking to the future with every confidence in its capacity to provide an excellent medical training combined with every facility for athletics. The chairman submitted the toast of Past and Present Students, recalling the days when students had not the amenities enjoyed by the present generation. He ended with wise and breezy advice to those who were now beginning their careers. Dr. F. F. Bond and Mr. A. S. Daniel, the hon. secretary of the Students' Club, replied to this toast. The latter voiced the gratitude of the students to those who had combined to provide them with a sports ground and pavilion. Mr. de Salis expressed the pleasure felt by the Springfield Mental Hospital Committee in helping to supply proper facilities for the students' recreation. Sir James Purves-Stewart proposed the Guests, making mention of the work of Dr. Barrie Lambert as chairman of that committee of the L.C.C. of which Dr. Menzies was executive officer, and of the activities of Mr. K. W. Barry, as chairman of the House Committee, and of Mr. de Salis in connexion with the mental hospital with which the school was associated. Dr. Menzies replied. Mr. Rock Carling proposed the Chairman, whose response ended the formal part of a happy evening.

MIDDLESEX HOSPITAL DINNER.—At the annual dinner held at the Savoy Hotel on Oct. 1st the chairman, Mr. A. E. Webb-Johnson, said that within a few weeks patients would be transferred to the new west wing. The two wards in the new surgical wing were to bear the names of Sir Charles Bell, founder of the Medical School, and Sir John Bland-Sutton. When the present work was complete the hospital would have, among other things, a new nurses' home, residents' house, power-house, pay-block, and institute of biochemistry, whilst the chapel would be enlarged. Nothing now remained but to pull down the right wing and start again; £300,000 would see the job through, and anyone who was at present feeling scared about financial speculation could not do better than choose a good safe investment such as the Middlesex Hospital. The sum of £300,000 given anonymously for the nurses' home was, he thought, one of the greatest if not the greatest gift ever received by a hospital from an individual during his lifetime. Retired nurses were getting the benefit of Dr. Essex Wynter's cottages, 11 of which were now occupied. After offering a cordial welcome to the new matron, Mr. Webb-Johnson referred to the death of Dr. F. J. Wethered, and spoke of the help which the hospital had had from the late Mr. Bernhard Baron. The retirement of Mr. Walter Kewley, the tried and trusted secretary of the hospital, had been a source of great regret, but it was to be hoped that his successor, Mr. S. R. C. Plimsoll, as the son of his father, would keep the hospital well above the safety line. Turning to the Medical School the chairman recalled that during the King's illness the scientific investigations had been done by Middlesex men, and congratulated Dr. L. E. H. Whitby and Prof. E. C. Dodds on their honours. Perhaps, however, the man most entitled to pride in these successes of his students was Prof. McIntosh. During the year the hospital had won two inter-hospital cups, for soccer and sailing. Mr. Eric Pearce Gould had retired from the post of Dean, which he had held with so much distinction to himself and so much benefit to others. His achievements had been many, but fate was ironical and he would probably go down to history as the man who got a drink licence for the School. Mr. Webb-Johnson concluded by wishing every success to the new dean, Dr. T. Izod Bennett. In proposing the toast of the hospital he expressed his admiration for Prince Arthur of Connaught for accepting the chairmanship when he knew what difficult problems had to be faced. In reply to the toast Prince Arthur said there was every reason for optimism. The general public, however, was apt to look on hospitals as rather frightening and repellent, and he wished they could be taught to change this view, and regard them not only as part of the national life, but as something friendly and welcoming. Responding for the Medical School, Dr. Izod Bennett made some amusing observations on the repressed romanticism of neurological surgeons, and Mr. J. N. O'Reilly produced witticisms which in themselves justified his selection as one-third of the Broderip scholar. Mr. Pearce Gould, proposing the toast of the Guests, pointed out that the guests of hospitals usually came in for rather peculiar hospitality. If he had taken a complete history of all the guests at this dinner what a tale he could unfold! Viscount Lee of Fareham, in his reply, said that the profusion of doctors present reminded him of the remark of a poor old woman from London who saw the sea for the first time and said: "My, but it's good to see enough of anything for once." He complained of the dog Latin affected only (he thought) by doctors and gardeners, and mentioned that his popularity seemed to have increased in hospital circles since it became known that, as chairman of the Radium Commission, he possessed a four-gramme bomb of radium. Lieut.-General H. B. Fawcus, Director-General of the Army Medical Services, spoke of the need for coöperation between civilian and military medicine in time of peace. Sir Arnold Lawson proposed the health of the chairman, whom he compared to Moses in his capacity for striking things out of rocks—not, however, by force, but by kind words and winning smiles. This toast was drunk with musical honours, and when Mr. Webb-Johnson replied he did not hesitate to tell Lord Lee that the four-gramme bomb could be safely entrusted to the Middlesex Hospital.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Oct. 8th.—5 P.M., THERAPEUTICS. Dr. Philip Hamill: Some Principles of Therapeutics (Presidential address).

THURSDAY.—8.30 P.M., NEUROLOGY. Dr. Gordon Holmes: Dissociation of the Ocular Movements (Presidential address).

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Dr. H. V. Morlock: Case of Pseudo-leukæmia. Mr. Cecil P. G. Wakeley: (1) Case of Congenital Shortening of the Femur. (2) Two Cases of Kohler's Disease. (3) Tuberculous Knee in a Boy of Ten. Dr. Gerald Slot: (1) Case of Actinomycosis. (2) Spinal Tumour. Mr. H. C. Edwards: Nævus of the Tongue. Dr. Dorothy Hare: Subacute Multiple Arthritis with Fibrous Nodules. Other cases will be shown. 8.30 P.M., OPHTHALMOLOGY. (Cases at 8 P.M.) Papers: Mr. E. E. Maddox: Demonstration of the Cheiroscope. Miss Rosa Ford: Some Ocular Complication of Nasal Sepsis. Cases and Specimens: Mr. Foster Moore: Case of Blue Sclerotics. Mr. J. Cole Marshall: Cystic Adenoma of the Conjunctiva. Mr. Humphrey Neame: Case of Gunshot Wound of Eyeball with Pellet Remaining in the Vitreous. Other cases will be shown.

SOCIETY FOR THE STUDY OF INEBRIETY.

TUESDAY, Oct. 8th.—4 P.M. (in the Great Hall of the British Medical Association House, Tavistock-square, London, W.C.). Sir Josiah Stamp: Alcohol as an Economic Factor. (Norman Kerr Memorial Lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Oct. 7th, to SATURDAY, Oct. 12th.—PRINCE OF WALES'S HOSPITAL, Tottenham, N. Tues., 2.30 P.M., Dr. Browning Alexander (Ward Round). Thurs., 2 P.M., Mr. H. W. Carson (O.P. Demonstration. No fee).—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. Intensive Course for two weeks. Limited to an entry of 20.—LONDON SCHOOL OF

HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens, W.C. Tues. and Thurs., at 2 P.M., lecture-demonstrations by Dr. Carmichael Low and Dr. Manson-Bahr. Further particulars from the Fellowship of Medicine.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS: Annual Conference at Newcastle-on-Tyne.

THURSDAY, Oct. 10th.—10.30 A.M. to 12.30 P.M., Mr. H. A. Mess, Ph.D.: Tuberculosis on Tyneside—A Sociological Survey. 2.30 P.M., Dr. Edouard Rist (Paris), Dr. A. F. Bernard Shaw, Dr. C. G. R. Goodwin, and Sir Thomas Oliver: The Factors that Produce Adult Pulmonary Tuberculosis.

FRIDAY.—10.30 A.M., Scheme of National Propaganda regarding Tuberculosis; Combined Treatment and Technical Education of Tuberculous Youths. 2.30 P.M., Sec. I.: Teaching of Tuberculosis to Under-graduates; Training of Tuberculosis Medical Officers. Sec. II.: Methods of Local Propaganda regarding Tuberculosis; Dentistry in relation to Tuberculosis.

SATURDAY.—9.30 A.M., Visits to Hospitals.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Oct. 7th.—2.30 to 5 P.M.: Medical, Surgical and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose and Throat Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Nose, Throat and Ear Clinics. Operations.

FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases Clinics. Operations.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Oct. 7th.—12 noon., Dr. Greenfield: Pathology of Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Adie: Disseminated Sclerosis.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: Occupational Neuroses.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Some Heredo-familial Diseases.

FRIDAY.—12 noon., Dr. Purdon Martin: Anatomy and Physiology of Nervous System. 2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Mr. Elmquist: Demonstration of Re-educational Methods (in Exercise Room).

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

MONDAY, Oct. 7th.—1.30 P.M.: Examination of the Mouth and Pharynx.

WEDNESDAY.—1.30 P.M.: Examination of the Larynx.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Oct. 9th.—4.30 P.M., Dr. D. Thomson: Common Infections of the Genito-urinary Tract.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Oct. 8th.—5 P.M., Dr. W. N. Goldsmith: Anatomy and Physiology of the Skin.

THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Morphology and Histopathology of Elementary Lesions.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, Oct. 9th.—3.30 P.M., Dr. J. F. Halls Dally: High Blood Pressure—What it is and How to Avoid it.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Oct. 8th.—4.15 P.M., Mr. H. H. Rayner: The Position of Surgery in the Treatment of Gastro-duodenal Ulceration.

FRIDAY.—4.15 P.M., Mr. C. W. W. Surridge: The Relation of the Medical Profession with Coroners.

Appointments.

KEELE, C. A., M.B., B.S., has been appointed Resident Medical Officer, Freemasons Hospital and Nursing Home, Fulham-road, S.W.

SHARPE, J., M.B., Ch.B. Glasg., D.P.H., Medical Officer to Lanarkshire Joint V.D. Committee.

Certifying Surgeons under the Factory and Workshop Acts: PLATT, A. H., L.R.C.P. Lond., M.R.C.S. (Acton and Ealing); and MARREN, J. P., M.B., Ch.B. R.U.I. (Clwt-y-bout Carnarvon).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. P. £250.
Bangor, Carnarvonshire and Anglesey Infirmary.—H.S. £200.
Bath, Royal United Hospital.—H.P. At rate of £120.
Bermondsey Parish Hospital, Lower-road, Rotherhithe, S.E.—Res. Asst. M.O. At rate of £400.
Birkenhead General Hospital.—Cas. S. £100.
Birmingham, Dudley Road Hospital.—Jun. Asst. M.O. At rate £200.
Birmingham, Selly Oak Hospital.—Res. Physician. £400–£600. Also Cas. O. at rate of £200.
Birmingham and Midland Ear and Throat Hospital.—Asst. Surg.O. £200.
Birmingham, Queen's Hospital.—Med. Registrar. £200.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.
Bootle Borough Hospital, Derby-road.—Jun. M.O. £125.
Bootle County Borough of—Asst. School M.O. and Asst. M.O.H. £600.
Bradford Royal Eye and Ear Hospital.—Jun. H.S. £120.
Bury Infirmary, Lancs.—Sen. H.S. £250.
Carlisle, Cumberland Infirmary.—H.P. At rate of £155.
Carlisle, Cumberland, and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £350.
Carmarthen Joint Counties Mental Hospital.—Jun. Asst. M.O. £300.
Cardiff City Mental Hospital, Whitchurch. — Post-Graduate Research Studentship. £100
Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Hon. Chief Clin. Assts.
Darlington County Borough—Deputy M.O.H. £750.
Doncaster Royal Infirmary.—Third H.S. At rate of £150.
Evelina Hospital for Children, Southwark, S.E.—H.P. At rate of £120.
Exeter, Royal Devon and Exeter Hospital.—Aural H.S. and Cas. O. At rate of £120. Also Hon. Physician.
Folkestone, Royal Victoria Hospital.—Sen. and Jun. Res. M.O.'s. At rate of £125 and £100 respectively.
Gloucester, Gloucestershire Royal Infirmary, &c.—Hon. S. to Ear, Nose and Throat Dept.
Great Yarmouth General Hospital.—Sen. H.S. £150. Also Jun. H.S. £100.
Halifax Royal Infirmary.—Third H.S. At rate of £100.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.S. Also Cas. M.O. and Cas. Surg. O. Each at rate of £100.
Highgate Hospital, Dartmouth-park Hill, N.—Third Asst. M.O. £350.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. At rate of £50.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Res. M.O. Also H.P. At rate of £150 and £100 respectively.
Hull Royal Infirmary.—Third H.S. Also Asst. H.P. At rate of £150 and £130 respectively.
Inverness Northern Infirmary.—Hon. Radiologist.
Islington Dispensary, 303, Upper-street, N.—Res. M.O. £300.
Larbert, Stirling District Mental Hospital.—Third Asst. M.O. £250.
Leicester Royal Infirmary.—Hon. Asst. Ophthal. S.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.
Maidstone, West Kent General Hospital.—H.S. At rate of £220.
Manchester Royal Infirmary.—H.S. for Special Depts. At rate of £50.
Manchester, St. Mary's Hospital—Four H.S.'s. Each at rate of £50.
Manchester, Salford Royal Hospital.—Cas. H.S. At rate of £125.
Margate, Royal Sea Bathing Hospital.—H.S. At rate of £200.
Margaret-street Hospital for Consumption, 26, Margaret-street, W.—Hon. Asst. Physician.
Metropolitan Ear, Nose, and Throat Hospital.—H.S. £150.
Metropolitan Hospital, Kingsland-road, E.—H.P.'s, H.S.'s, &c. Each at rate of £100.
Miller General Hospital, Greenwich-road, S.E.—Out-patient Officer. At rate of £150.
Newcastle-upon-Tyne Eye Hospital.—Hon. Res. H.S. £200.
North Middlesex Hospital, Edmonton, N.—Second Asst. S. £500.
Norwich, Norfolk and Norwich Hospital.—H.P. £120.
Nottingham City Mental Hospital.—Jun. Asst. M.O. £350 to £400.
Nottingham General Dispensary.—Res. Surg. £250.
Paddington Green Children's Hospital, W.—H.P. and H.S. Each at rate of £150. Also Anæsthetist, £75.
Rotherham Hospital.—H.P. £180.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Hon. Asst. Surg. Also Surg. Registrars. Each £105.
Royal Naval Dental Service.—Dental Officers.
Salford Royal Hospital.—H.S. £125. Cas. H.S. £125.
St. Andrew's Hospital, Dollis Hill, N.W.—Sen. and Jun. Res. M.O.'s.
St. John's Hospital, Lewisham, S.E.—Res. Cas. O. and Res. H.P. Each at rate of £100.
St. Peter's Hospital for Stone, Henrietta-street, W.C.—Radiologist. £25.
Saint Mark's Hospital for Cancer, &c., City-road, E.C.—H.S. At rate of £75.
Salisbury General Infirmary.—Res. M.O. £150.
Sheffield, South Yorkshire Mental Hospital.—M.O. £400.
Southampton, Royal South Hants and Southampton Hospital.—Cas O. At rate of £120.

Stafford County Mental Hospital.—Second Asst. M.O. £600.
Sudan Medical Service.—M.O. £E720.
Sydney University, N.S.W.—Bosch Chair of Bacteriology. £1500.
Watford, Herts, Peace Memorial Hospital.—Res. M.O. At rate of £150.
West London Hospital, Hammersmith, W.—Hon. Registrar for Throat, Nose, and Ear Dept. House Officer for Children's Dept. At rate of £150. Asst. M.O. At rate of £450. Also three Jun. Asst. M.O's. Each at rate of £350.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Non-Res. H.S's. At rate of £150 and £100 respectively.
Weston-super-Mare General Hospital.—Res. H.S. £130.
Westminster Hospital, Broad Sanctuary.—Wander Scholarship, &c. £250.
Willesden General Hospital, N.W.—Res. H.S. At rate of £100. Also Physician.
Winchester, Royal Hampshire County Hospital.—Res. H.S. At rate of £150.
Woolwich and District War Memorial Hospital, Shooter's Hill, S.E. Res. M.O. £175. Also H.S. At rate of £125.
Worcester General Infirmary.—Jun. Res. M.O. At rate of £120.

Births, Marriages, and Deaths.

BIRTHS.

LANSDOWN.—On Sept. 30th, at Woodcote Grove-road, Coulsdon, the wife of R. B. P. Lansdown, M.B., B.Ch., of a daughter.

MACKENNA.—On Sept. 25th, the wife of Dr. R. M. B. MacKenna, Liverpool, of a daughter.

MCLAGGAN.—On Sept. 29th, to Elsa V. McLaggan, M.B., B.S. (née Adams), wife of J. D. McLaggan, F.R.C.S., of 15, Wimpole-street, W.1—a son.

MARRIAGES.

DOWELL—DOMMEN.—On Sept. 17th, at St. Werburgh's, Derby, Dr. W. H. Dowell, of Castle Donington, to Henriette (Babs) Dommen, of Swiss Cottage, Tutbury.

HUDDY—JUMP.—On Sept. 21st, at the Parish Church, Wimbledon. E. C. Huddy, M.B., B.S. Lond., of New Milton, Hants, to Mary, only daughter of Mr. and Mrs. E. Jump, of Cambridge-road, Wimbledon.

SMITH—HOOGEWERF.—On Sept. 28th, at St. Mary's Church, Egerton-gardens, N.W., Kenneth Shirley Smith, M.D., M.R.C.P., to Alice Wilhelmina, elder daughter of Mr. and Mrs. Edmund Hoogewerf, late of Industries Department, Bengal.

DEATHS.

BOND.—On Sept. 24th, at a nursing home, Eastbourne, Charles Knox Bond, M.D.

FRASER.—On Sept. 26th, Dr. Mathew William Fraser, Rimpton, Somerset, and late of the West African Medical Service.

GLYNN.—On Sept. 22nd, Ernest Edward Glynn, M.D., F.R.C.P., late Professor of Pathology, University of Liverpool, aged 56.

MITCHELL.—On Sept. 27th, at Aberdeen, Peter Mitchell, M.D., C.M., aged 65 years.

SMYTH.—On Sept. 23rd, at St. Ives, Cornwall, William Ardagh Smyth, L.R.C.P., L.R.C.S. Edin.

N.B.—A fee of 7s. 6d is charged for the insertion of Notices of Births, Marriages, and Deaths.

PRINCE OF WALES'S GENERAL HOSPITAL.—This institution at Tottenham is the only large London general hospital which serves a population of three-quarters of a million in the industrial district of north-east London. There are 200 beds, and the report for last year shows that 2796 patients were dealt with, and that their cost, for an average stay of 22 days, was £10 17*s.* 7*d.* New out-patients numbered 28,789 and cost 8*s.* 3*d.* each. The antiquated out-patient department urgently needs to be rebuilt, which would cost £35,000, of which only one-seventh is yet in hand.

BIRMINGHAM CRIPPLES HOSPITAL.—The annual report describes the additions that are being made to the Woodlands Hospital which are to be opened by the Duke and Duchess of York at the beginning of November. There is a new children's ward divided into two sections, one for boys and the other for girls, with 30 beds in each; adult male and female wards each have 20 beds. A nurses' home will accommodate 41 probationers and 8 sisters, and new theatre and massage departments have been provided. In 24 years the Workmen's Auxiliary Committee has given £28,000 to the hospital.

Notes, Comments, and Abstracts.

OBSERVATIONS IN ICELAND.

HISTORY AND HEALTH.

(FROM A SPECIAL CORRESPONDENT.)

IN the summer of 1929 I visited Iceland with a view to getting into touch with the members of the Icelandic Red Cross, studying its work, and ascertaining if there were any ways in which the League of Red Cross Societies, of which the Icelandic Red Cross Society became a member in 1924, could be of service to it. Before undertaking this study visit, I called on Dr. Gregg, of the Rockefeller Foundation in Paris, as he had recently visited Iceland on behalf of the Foundation. The information he most generously put at my disposal provided me with a very useful bird's-eye view of the whole situation, and I started on my journey not only infected with some of his enthusiasm for what he called "a beautiful little rock garden" in the Atlantic, but also grounded in some of the elements of the public health problems of Iceland.

To those who may feel tempted to visit Iceland (and I recommend it as a most curiously fascinating country, calculated to titillate the palate of the most jaded globe-trotter) I would mention the very comfortable route I followed—a special boat-train from King's Cross to Newcastle, a boat that takes only 24 hours to Bergen, and the *Lyra*, which leaves Bergen every other Thursday, and reaches Reykjavik early the following Tuesday, after having touched at the Färoe Islands. The Bergenske Dampskibsselskab, on whose boats I travelled, charge 210 kroner for this journey from Newcastle to Reykjavik, board being included in this first-class ticket. The exchange value of the Norwegian krone is about 18 to the pound sterling.

The visitor to Iceland who intends to do something more than play bridge on board ship and take snapshots of his fellow travellers and other bizarre objects, would do well to study the outlines of its history. It was the last of all the European countries to be colonised, the first colonists settling in A.D. 874. The settlers were chiefly Norwegians, many of them being of noble birth and of too independent a spirit to submit to the rule of Harald Haarfagre, King of Norway. In his interesting anthropological study of Iceland, Prof. Gudmund Hannesson has drawn attention to the influence this process of selection has had on the physique of the Icelander of to-day. He has found that the modern Icelander is taller than his contemporaries in the parent Scandinavian countries, and he assumes that the first settlers were as a class tall men, as well as being chieftains of noble blood. Most of the present-day Icelanders can trace their descent uninterruptedly from one or other of these chieftains, and it is this fact which largely explains the spirit of chivalry and old-world courtesy which permeates all classes. The modern Icelander is something of the *grand seigneur* whose instinctive, but unwritten motto is: *noblesse oblige*. The visitor would do well to remember that the hospitality he receives on some lone farm is not that of some humble crofter, but of a nobleman whose ancestors would have regarded most of the folk who "came over with the Conqueror" as parvenu adventurers.

The first 60 years of the history of Iceland were politically nondescript. In 930 the country became a republic, with an Althing, or Parliament, and a code of laws for the whole country. It was a free and sovereign State which lost its independence in 1262, when it came under the rule of Norway. In 1380 its allegiance was transferred to Denmark, and under Denmark it remained till only a few years ago. In 1918, after many years of difficult negotiations with Denmark, Iceland achieved independence, and it is now a sovereign State again. As an independent monarchy, it is reigned over by the King of Denmark. Next year, on June 26th, 27th, and 28th, Iceland will celebrate at Tingvalla, the volcanically-formed, open-air forum a few miles outside Reykjavik, the thousand-year jubilee of parliamentary government.

The total area of Iceland is 103,000 square kilometres, but the habitable area is small and is chiefly limited to the coast and certain valleys. At Reykjavik the annual mean temperature is 4·1° C., the mean temperature in January, which is the coldest month of the year, being 1·2° C. The mean temperature in July, which is the warmest month of the year, is 10·9° C. Iceland is generally reputed to be very bleak and fog-bound, but in the summer, at any rate, there is plenty of sun, and a solarium in the new hospital at Reykjavik is a tacit protest in concrete against this

reputation. A few miles outside Reykjavik there are conservatories, heated by natural hot springs, in which tomatoes and melons ripen.

The population of Iceland on Dec. 31st, 1927, was 103,317, that of Reykjavik alone being 24,304. This nation is rapidly growing, the population on Dec. 31st, 1925, being only 100,117. The birth-rate in 1927 was 25·6 per 1000, and the death-rate 12·4. In the past, much of Iceland's surplus population has emigrated, and there are approximately 25,000 in Canada and the United States alone. At the present time Iceland can absorb her own surplus population, chiefly because the modern development of her fisheries is bringing her unprecedented prosperity. It is for this reason that the increase in the population concerns only the coastal areas. But though the rural population has stood still, or even dwindled, it is only a matter of time, probably quite a short time, before the rapidly growing network of roads and the exploitation of Iceland's superabundance of water-power, will people the interior with many times its present population. At present, with almost four-fifths of the country uninhabited, and for the most part uninhabitable on account of glaciers, volcanic deserts, &c., there is something less than one person per square kilometre. The excess of females above males reflects to a certain extent the increased hazards of drowning to which males are disproportionately subjected. In the five-year period 1916–20 almost two-thirds of the deaths from accidents were due to drowning. Many doctors lose their lives in this way: crossing a swollen torrent, the doctor is carried away, while his pony swims ashore.

There are about 100 doctors in Iceland (in 1927 there were 98), 18 of whom act as medical officers of health in as many administrative medical districts. They are, of course, general practitioners as well. In almost every parish there is a trained midwife, and the total number of trained midwives is about 200. Their duties include vaccination, which has been compulsory since 1810. But there are only about half a score of dentists and as many chemists in the whole of Iceland. A medical director is responsible for the administration of all matters concerning public health.

Housing and Town-planning.

Some thousand years ago the dwelling-houses were comparatively large, and the birch wood which then covered the island provided plenty of fuel for the fires burnt in the middle of the room in the old Norwegian fashion. Later, lack of timber for building purposes and of wood for firing compelled the inhabitants to live in small huts of turf and rough stones, providing only some 5 cubic metres for each person. As Prof. Hannesson puts it: "The birch wood forests disappeared. . . . There was no coal, and good peat was scarce. The fire of the hearth was no longer lit. For centuries the Icelanders have lived in almost unheated houses. . . ." This state of affairs is changing, as a rule for the better. But in the rapidly growing villages and towns on the coast there is a serious housing shortage, and the dwellings are apt to be poor as well as overcrowded. The new buildings are usually made of concrete. The double outer walls are provided with an intermediate space which is packed with dry peat dust or chips of cork. These houses are both warm and fire-proof. Central heating is sometimes provided by natural hot springs, and electric light from some neighbouring waterfall. Recent town-planning legislation obliges all communities numbering 500 and upwards to make a survey of the harbour and of as much of the surrounding land as will be required for the growth of the community in the next 50 years. The cost of this survey is borne equally by the Government and the town. All communities having a Government-ratified town plan are subject to Government inspection every fifth year, and all new buildings which do not conform to the town plan are to be immediately pulled down at the cost of the town. This legislation is said to have worked satisfactorily on the whole.

Infant Welfare.

Few figures are so eloquently demonstrative of the progress made during the last decades as those dealing with vital statistics. During the period 1886–95 there were 36 still-births for every 1000 births. During the five-year period 1916–20 this figure was reduced to 29, and during the five-year period 1921–25 there was a further reduction to 25. According to the reports of midwives, 95·4 per cent. of the infants in Reykjavik, and 75·8 per cent. in the country districts, were breast-fed. The average infant mortality of 62·3 per 1000 in the five-year period 1921–25 is among the lowest, if not the lowest, in Europe.

Tuberculosis.

Until the last quarter of the nineteenth century, when housing and sanitation were at a low level and semi-starvation not rare in Iceland, tuberculosis was hardly known. During the last decades, housing, general sanitation, and the nation's diet and standards of cleanliness have vastly improved. Preventive and therapeutic measures in relation to tuberculosis have absorbed increasingly large sums of money. Yet the disease has apparently increased by leaps and bounds. In 1921 the number of notified cases was 745, whereas in 1927 this number had risen to 1100. The rise in the death-rate from tuberculosis was much less abrupt. In the five-year period 1911–16, with an annual average of 147 deaths, it was 1·7 per 1000, whereas in the five-year period 1921–25, with an annual average of 186 deaths, it was 1·9 per 1000. The apparent rarity of tuberculosis in former years may partly be traced to defective diagnosis and notification, but it would also seem that the improvement of communications, and all that this improvement entails, have favoured an actual increase of the disease. This increase has been spread over several decades, and may not yet have reached its maximum. The first sanatorium (Vifisstadir Sanatorium, 140 beds) was not built till 1910.

Drastic and costly measures have been taken to combat tuberculosis. In 1921 a special law was passed, and strict regulations were adopted with regard to notification and the prevention of infection. Disinfection is compulsory when a patient moves or dies, his home cannot be used as a school, and children with open tuberculosis may not attend ordinary schools. The subjects of open tuberculosis may not be employed as school teachers or midwives, nor work in milk shops, restaurants, or provision stores. Children and young persons may not live in the homes of patients suffering from open tuberculosis. The State not only provides sanatoriums and similar institutions, but also defrays three-fifths of the running expenses, except when the patients are in easy circumstances. In practice nearly all open cases are given free treatment for a long period in sanatoriums and hospitals, and the annual cost to the State now exceeds 500,000 kr. Of all the cases notified in 1926, 27·7 per cent. were under the age of 15. Of the patients over this age and suffering from pulmonary tuberculosis 64·5 per cent. were women—a curious sex disproportion which is the more remarkable as only 51·2 per cent. of the patients suffering from tuberculosis of organs other than the lungs were women. About 20 per cent. of the deaths from tuberculosis in 1926 were due to meningitis.

Tuberculosis is rare in cattle; measures have recently been taken against it. In 1923 it was made notifiable. Diseased animals must be inspected by a veterinary surgeon and slaughtered if necessary, the cost of these measures being borne partly by the State, partly by the local authorities.

Leprosy.

Leprosy was formerly very rife in the country, and as late as 1896 there were as many as 236 lepers. In 1898 a 60-bed hospital for lepers was built near Reykjavik. By 1921 the total number of lepers had fallen to 63, and in 1927 this number had been further reduced to 44, 34 of these patients being resident in the hospital. Four new cases were notified in the five-year period 1921–25.

Venereal Disease.

Gonorrhœa became endemic in Iceland about 1890, and syphilis after 1900. As was to be expected, these diseases are practically limited to the seaports, and a considerable proportion of the patients are foreigners. Gonorrhœa and syphilis are increasing. Legislation in 1923 provided for the compulsory notification and treatment of cases of venereal disease, the cost of residence and treatment in hospital being free for persons in necessitous circumstances. The medical officers of health are instructed to conduct educational campaigns against this disease in those areas where it is rife. Persons suffering from venereal disease in an infectious stage are forbidden by law to marry. In 1927 there were 348 cases of gonorrhœa notified, the annual average for the five-year period 1921–25 being 230. As many as 12 of the 34 patients notified as suffering from syphilis in 1927 were foreigners. The annual average of notifications of syphilis in 1921–25 was 25.

Influenza.

There is a deep-rooted conviction in Iceland, both with regard to man and to cattle, that the plagues from which the country has suffered from time to time have been imported from abroad. Doubtless this conviction is well founded. But in the case of cattle, at any rate, it has done much to prevent the improvement of the stock by new and better imported strains. Influenza is no exception to the rule that most infectious diseases are imported, all the serious outbreaks being traced to infection from abroad. The "Spanish influenza" of 1918 caused many deaths, but also conferred an immunity in the survivors which was little impaired when another epidemic wave invaded the country in 1921. This epidemic lasted for five months, reaching its maximum in the third month. Three districts escaped completely by voluntary isolation, and there were many instances of whole parishes and single farms escaping

the epidemic by this means. The epidemic of 1924 lasted for some months, reaching its maximum in the second month. In some districts it spread to almost every home, while in other districts it was much more sporadic as a result of preventive measures or of the immunity left by the waves of 1918 and 1921. The comparatively slow spread of the disease in most districts may have been due in great part to this immunity. The death-rate from the epidemic in 1924 was about 1 per cent. The growing immunity to influenza seems to have created a crop of abortive cases and to have rendered the differential diagnosis of influenza and acute bronchial catarrh very difficult. The latter disease did not spread so rapidly, and the one disease did not confer immunity to the other. Cases of influenza were most infectious in the latter half of the incubation period, and shortly after the outbreak of symptoms, but usually for not more than four days after this outbreak. The age-incidence varied in different epidemics, in some of which few persons under the age of 15 suffered, whereas in others there were many patients under this age. While only 941 cases were notified in 1925 the number of notifications rose to 3115 in 1926, in the latter half of which there was a typical epidemic which spread rather slowly. Most of the persons who had had influenza in 1925 were immune, but in isolated areas, which had not been visited by influenza for some years, the epidemic spread to almost every home and caused considerable havoc.

Epidemic Pleurisy.

In 1911 and again in 1917 there were small outbreaks of this obscure disease. An epidemic in 1923 was investigated by the bacteriologists Dr. Thjötta and Dr. Salvesen, but no specific germs could be found. A serious outbreak occurred in 1926. It began in Reykjavik in June, and it was not clear whether it was imported from abroad or not. The 87 notifications in Reykjavik in June rose to 148 in July and sank to 42 in August, petering out soon afterwards. In the latter half of the year it spread to about 20 districts. The main epidemic ran through the country in four months, reaching its maximum in the second month. The incubation period was short, and the disease began with high fever, sometimes of a remittent character, associated with more or less violent pain in the chest. Sometimes this pain was like that of pleurisy or lobar pneumonia, sometimes it was more diffuse, involving the upper abdomen as well as the lower part of the thorax. The pain was often so severe and the abdominal muscles were so tender that the patients preferred to lie motionless. The stethoscopic examination was sometimes negative but sometimes revealed definite pleuritic rubs over the lower parts of the lungs after the patient had been ill for some days. The illness lasted a week or a week and a half, usually without any signs of bronchial catarrh or influenza. Relapses occurred, notably after exertion or exposure, but no case ended fatally. While the rapid spread of this epidemic over a great part of the country has caused it to be regarded as a modified form of influenza, the facts that it has formerly occurred in small local epidemics, and that its manifestations are in many respects different from those of influenza, are opposed to this conception. Outbreaks of this disease in the middle of the winter weaken the case for regarding it as insect-borne.

Rheumatism.

The number of cases of acute rheumatism observed every year does not vary greatly, nor is there any marked seasonal difference. The disease seldom runs parallel with acute tonsillitis, scarlet fever, or diphtheria. It is usually of a mild type, and not only is it less frequent than in neighbouring countries but it is also comparatively seldom followed by endocarditis. Salicylates have but a slight effect on it, and it is possible that it is often of tuberculous origin (Poncet's rheumatism). The proportion of male to female patients is as 1 to 3. Among the 146 cases of acute rheumatism notified in 1926 there was not one in which heart complications were mentioned.

Lobar Pneumonia.

This disease is frequent in Iceland and its incidence varies greatly from year to year. Thus, in the five-year period 1916–20, the annual notifications averaged 312, whereas in the five-year period 1920–25 this figure rose to 613 cases. In 1926 only 185 cases were notified, whereas in 1925 there were 278 cases. The disease was most frequent in the North and West, and in the months of May and June. The age- and sex-distribution showed some curious features. In over 19 per cent. the patients were under the age of 15. Between the ages of 15 and 65 the percentage-incidence was 52·4 for males and 22 for females. Over the age of 65 this preponderance among males was continued, the respective percentages being 4 and 2·4. In some cases the disease was very contagious, and on one farm all the five inmates were ill at the same time.

Measles.

An epidemic of measles, imported from Norway in 1924, ran through the country and lasted till 1926. Public measures taken in the beginning of the epidemic failed to arrest it, but voluntary isolation was temporarily effective in many districts. It ran on the whole a mild course, with a mortality of about 0·5 per cent. In earlier years, and before the inhabitants had become immunised, the epidemics which swept over the country at long intervals were associated with a high mortality. This epidemic seemed to have come to an end in October, 1925, but in November there was a recrudescence of it, the peak being reached in January, 1926. It died out in August of this year. While the usual duration of epidemics of measles is 14 to 16 months, this epidemic lasted about 26 months—a spell the length of which may be traced to the preventive measures which were adopted in certain districts, and which evidently deferred without permanently aborting the evil. The districts which entirely escaped this epidemic may find measles a very unpleasant rod in pickle when the next epidemic invades the country. Prevention of the disease by the injection of the serum of convalescents was found effective in some districts.

Hydatid Disease.

Some 60 or 70 years ago hydatid disease of the liver caused by *Tænia echinococcus* was so common that about 2 per cent. of the inhabitants were supposed to suffer from it. Now this disease is becoming rare, thanks to the drastic measures taken against it. About 25 years ago Dr. Steingrimur Matthiasson, now in charge of the hospital in Akuryri, the second largest town in Iceland, found that operations for hydatids were the most frequent of all major operations at his hospital, whereas at the present time he can count such operations on the fingers of one hand in the course of the year. In 1863 there was one dog to every three to five inhabitants, whereas at the present time this dog-to-man ratio has been reduced to 1 to 15. Thanks to the energetic efforts of Dr. Gunnlaugur Claessen and his colleagues, no one may keep dogs in Reykjavik, and in certain other communities they are excluded or kept under very close control. The law of 1890 imposed a tax of 2*s.* to 10*s.* on every dog, and enjoined the deep burial or burning of hydatid-infected material found in slaughtered animals. The same law imposed on all town and parish councils the task of purging dogs with areca powder after the slaughtering time in the autumn. Dr. Claessen's recently published work on X ray aspects of hydatid disease, qualifying him for the degree of M.D. in Sweden, promises not only to be a standard work in this field, but is also a good example of the scientific activities of the medical profession of Iceland to-day.

(To be concluded.)

ASPIRIN AS A HIRUDICIDE.

To the Editor of THE LANCET.

SIR,—During the Great War in a district in Palestine where no doctors were easily available, a woman with a sick child who suffered from fever and spitting of blood consulted a pharmacist. The puzzled man invoked his old friend aspirin to combat the fever. An hour after having administered aspirin to the boy the mother returned with two big leeches in her hand, thanking the pharmacist and reporting the cure of the child. Henceforth we made experiments on dogs afflicted with leeches by simply throwing aspirin into their mouths, and in all cases this treatment has proved effective. I believe aspirin is a much better treatment for leeches than the extraction method.

I am, Sir, yours faithfully,

BUTRUS SALAH, M.D.

Jaffa, Palestine, Sept. 18th, 1929.

THE DESTRUCTION OF HOME PESTS.

ALL households, especially those situated in the country, are at some time visited by one if not more of the ordinary home pests such as ants, flies, or mosquitoes. Since these are a menace to public health it is important that everyone should be familiarised with the best methods of exterminating them. A brief knowledge of their habits and life histories is essential if these pests are to be intelligently combated. Since it is easier to cope with them in the egg or larval stages than after they have become adults, Mr. J. S. Bainbridge[1] recounts the habits, life-histories, and tested methods of control of all the common household pests, gives simple practical advice, and includes a number of clear illustrations.

[1] Home Pests and their Destruction. By J. S. Bainbridge, M.Sc. London: William H mann (Medical Books), Ltd. 1929. Pp. 94. 3*s.* 6*d.*